



Backflow Prevention Containment Guidelines

**Western Water
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Guidelines Statement

All property owners when notified by Western Water must comply with the requirements of AS/NZS 3500:1 (and as amended) and the Water Act 1989 (and as amended). All property owners with reticulated water supply connection must arrange for a suitably qualified person to assess the potential hazard and install an appropriate backflow prevention device at the boundary/main water meter for containment purposes.

The installation of an appropriate backflow prevention containment 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.

The Policy is effective from 1st July 2011.

Background

The policy has been introduced for the protection of the Reticulated Drinking Water Supply System and to safeguard public health. It has become essential with the increasing number of recycled water estates being developed within Western Water's boundaries.

The policy encompasses the varying aspects of backflow prevention and Western Water's commitment to maintaining a collaborative approach with property owners resulting from the changing demands of reticulated water supply.

The community water supply is under threat with the risk of water quality being compromised due to the increased use of alternative water supplies within the community.

Western Water reserves the right to specify any additional requirements without notice as deemed appropriate to ensure the integrity of the Reticulated Water Supply System.

Policy Introduction

This Backflow Prevention Containment Policy applies to all property owners connected to Western Water's system. It identifies the type of backflow prevention required for property connections with low, medium or high hazards as defined in Australian/New Zealand Standard (AS/NZS) 3500, Part 1 Water Services (AS/NZS 3500:1) (and as amended) and the conditions that property owners must comply with to remain connected to the Reticulated Water Supply System

Guidelines Objectives

1. To ensure the integrity of Western 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, rural, mixed development processes, industrial processes and properties serviced by grey and black water recycling systems.

2. To specify when testable backflow prevention containment devices are required to be installed at properties with a medium or high hazard rating in order to protect the system from contamination flowing back through the property water service, metered standpipes, separate fire service or hydrants.
3. To outline Western Water's requirements to install and test backflow prevention containment devices on properties rated as medium and high hazards.
4. To outline Western Water's requirements to ensure non-testable backflow prevention devices on properties rated as a low hazard.
5. To identify backflow prevention containment requirements for customers with multiple reticulated water supplies.
6. To identify backflow prevention containment requirements on fire services.

Terms and Definitions

TERM	DEFINITION
AS/NZS 3500.1	Australian/New Zealand Standard for Plumbing and Drainage Part 1: Water Services
Backflow	The unplanned reversal flow of water or mixtures of water and contaminants into the Reticulated Water Supply System.
Backflow Prevention Containment Device AS/NZS 3500.1	A device to prevent the reverse flow of water from a potentially contaminated source, into Western Water’s Reticulated Water Supply System.
Backpressure	A Backflow condition caused by the downstream pressure becoming greater than the supply pressure.
Back-siphonage	A Backflow condition caused by the supply pressure becoming less than the downstream pressure.
Compliance Program for Existing Properties	A program identifying existing properties having a medium or high hazard rating requiring to be fitted with appropriate containment protection.
Containment Protection	The installation of a backflow prevention containment device on the Reticulated Water Supply System at the property boundary, to prevent backflow from within the property entering the 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 2845 Part 1.
Drinking Water	Water that is suitable for human consumption, food preparation, utensil washing and oral hygiene (see AS/NZS 4020). Compliance with the Australian Drinking Water Guidelines 2004 (and as amended) is required.
Dual Check Valve	Low hazard non-testable device in accordance with AS 2845 Part 1
Fire Service	Services comprising water pipes, fire hydrants, fire hose reels, fittings and including water storage or pumping facilities, which are installed solely for firefighting 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 Western 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 on-site
Western Water	The organisation responsible for the supply and on-going management of Reticulated Water Supply Systems in a designated area of supply.
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 2845 Part 1.
Registered Air Gap	A device or system installed for backflow prevention registered by, or on behalf of, a Network Utility Operator for inspection and maintenance. 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.
Registered Break Tank	A tank system specifically designed for Backflow prevention registered by, or on behalf of a Network Utility Operator, for inspection and maintenance.
Reticulated Water Supply System	The supply system into which the Network Utility Operator delivers drinking and/or non-drinking water.
Suitably qualified person – backflow testing	A plumber Registered and/or Licensed in Backflow according to the Plumbing Industry Commission (PIC).
Zone Protection	Installing a Backflow prevention device at the connection point of specified sections of a plumbing system within a building or facility.

Legislation and Standards

The following are the principal Acts, Regulations and Standards that are relevant to the area of backflow prevention.

The Water Act 1989 (and as amended)

It 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.

Safe Drinking Water Act 2003 (and as amended)

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 the managing of water quality.

Water Industry regulations 2006 – This has been added

Section 11 and 17 outlines the property owner's responsibility for the installation and ongoing maintenance of backflow prevention devices.

AS/NZS 2845 Water Supply – Backflow Prevention Devices (and as amended)

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 – Water Services (and as amended)

Section 4

This section 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.

Operating Principles

1. The property owner is responsible for the purchase and installation costs of a backflow prevention containment device appropriate to the hazard rating of the development type as specified in AS/NZS 3500.1 Water Supply Section 4 (and as amended).
2. The property owner is responsible for the maintenance and testing of the device as detailed in AS/NZS 3500.1 (and as amended), AS/NZS 2845 Part 3 (and as amended) and the Water Act 1989 Section 145 (3 C) (and as amended) by a suitably qualified person.
3. Western Water will maintain a register of all installed testable backflow prevention containment devices and annual test reports. They will conduct audits of installations from time to time to ensure on-going compliance with AS/NZS 3500.1 (and as amended) and Western Water's Backflow Prevention Containment Policy.
4. If Western Water issues a notice that a backflow prevention containment device does not comply with AS/NZS 3500.1 (and as amended) and Western Water's Backflow Prevention Containment Policy the property owner must engage a suitably qualified person to repair, maintain, test, replace or install the backflow prevention containment device as specified in the notice within the timeframe given.
5. If the property owner fails to comply with the notice issued by the Western Water to repair, maintain, test, replace or install the backflow prevention containment device, Western Water in accordance with the Water Act 1989 Section 151 may remove or disconnect the Reticulated Water Supply System to the property or to carry out the required maintenance works and recover from the property owner all reasonable costs applicable.
6. If the process at the property has changed affecting the hazard rating, the property owner must have a suitably qualified person assess the site and provide a written report of their assessment to Western Water certifying the change in hazard level. Western Water may conduct a site audit to verify the revised hazard rating.

Operating and administrative Requirements

1. A testable backflow prevention containment device must be installed on all properties with a medium or high hazard risk in accordance with AS/NZS 3500.1 (and as amended) Plumbing and Drainage Part 1: Water Services at or near the property boundary. No connection may bypass the backflow prevention containment device.
2. The type of backflow prevention containment device installed is based on the on-site water processes and or the type of Reticulated Water Supply System present.
3. In the absence of a known hazard for any new development, Western Water will automatically default to a high hazard device. The owner/developer shall engage a suitably qualified person to conduct an assessment to determine the appropriate hazard rating.

NOTE: Consent to connect will only be granted once relevant backflow documentation is completed and received by Western Water.

4. Where multiple processes occur on a site, the hazard rating of the backflow prevention containment device will be equal to or greater than that of the highest hazard required to protect the zone and or individual hazard.
5. The property owner must complete a registration form agreeing to maintain and test the backflow prevention containment device(s) at intervals of no more than 12 months from the date of the initial commissioning or as otherwise determined by Western Water.



6. Residential properties provided with a reticulated Class A recycled water supply are provided with a dual check valve/dual check meter on the Class A recycled water supply which provides a minimum control against cross-connection.
7. The backflow prevention containment device(s) shall be installed, commissioned and tested annually by a suitably qualified person.
8. Results of annual testing of the device must be forwarded to Western Water within 14 days of the test for recording.
9. 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 AS2845 Water Supply – Backflow prevention devices - Part 3 Field testing and maintenance (and as amended).
10. Owners of properties with high hazard ratings must install a reduced pressure zone device, registered break tank or registered air gap.
11. Owners of properties with a medium hazard rating must install a testable double check valve.
12. Standpipes (portable and fixed for tankering/water carrying/temporary supply purposes) connected to Western Water Reticulated Water Supply System shall be rated as a high hazard.
13.
 - a) Fire services require a single spring-loaded check valve as a minimum.
 - b) If fire services using alternative water are inter-connected to the fire service a higher hazard level would apply in this instance.
 - c) Where fire appliances are provided in a high hazard area, backflow prevention commensurate with the hazard level shall be provided.
14. Drinking and non-drinking water services must not be interconnected without the installation of an appropriate backflow prevention containment device. The device installed must be the same on both the drinking and non-drinking water services. These properties include mixed developments and areas serviced by grey and black water recycling systems.

Compliance

1. The property owner is responsible for arranging the installation, maintenance and annual testing (where applicable) by a suitably qualified person of the backflow prevention containment device(s) within their property in accordance with AS/NZS 3500.1 (and as amended).
2. A licensed plumber may install all backflow prevention containment devices. Only a suitably qualified person may commission, and test these devices.
3. A licensed plumber may install registered break tanks, and registered air gaps. Only a suitably qualified person may commission, and test these devices.
4. The property owner is responsible to ensure that the backflow test report is submitted to Western Water within 14 days of the test being conducted.

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 processes, to install additional individual/zone protection backflow prevention devices.

Non-Compliance

As the aim of this Backflow Prevention Containment Policy is the protection of the System and public health, it is vital that all parties co-operate 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 western 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 151 of the Water Act 1989 (and as amended).

Examples where the System may be disconnected include:

- Failure to install a backflow prevention containment device following request from Western Water;
- Failure to carry out tests or maintain a backflow prevention containment device in accordance with AS/NZS 3500 (and as amended) and AS/NZS 2845 (and as amended);
- Failure to replace or repair a backflow prevention containment device;