



Backflow Prevention

What is Backflow?

Backflow occurs when water flows in the opposite direction to its normal or intended direction.

This could occur in many situations including industrial, domestic or the following example agricultural:

Under normal circumstance the water will flow in one direction from the bore into the piping or irrigation network to the crop. When the normal flow of water is reversed that is from the pipes on the property back into the bore or holding tanks, it is referred to as backflow.

If the bore experiences a backflow event, contamination may not only affect the quality of your water but will likely affect nearby neighbouring properties also.

How does Backflow Occur?

Backflow can occur when water pressure is not maintained. Water pressure can be affected when:

- There is a break in the pipe work.
- The water pressure being pumped through your irrigation system is higher than that from your bore pump.
- The irrigation system shuts down and water can flow back into the water source or holding tanks.
- The fertigation system shuts down and the irrigation system continues to operate and force water back into the chemical supply tanks.

Without a suitable backflow device the chemically treated water has the potential to flow

backwards through the irrigation pipes and into the water source.



Picture: High risk of contamination through Backflow (i.e. back-syphoning) with the hose used to fill the chemical or fertiliser mixing reservoir is left in place unattended, with no backflow prevention device apart from a manual shut-off valve.

Water Driven Chemical Injectors

Chemigation is the process of mixing agricultural chemicals with water by injecting the chemical into the irrigation water system. The water is then distributed to the crops via the irrigation lines.

Depending on the type of agricultural chemical being applied, chemigation may be referred to as fertigation, herbigation, insectigation and fungigation.

Chemigation can be an effective and safe way of applying certain agricultural chemicals to some irrigated crops if the proper irrigation system and suitable anti-backflow devices to protect the water source are utilised.

Backflow Prevention Devices

A properly installed, functioning and maintained backflow device will ensure water flows safely by trapping water that begins to flow in the wrong direction. There are a number of backflow devices on the market; following are just a couple of examples.



Picture: (above) a 150mm Reduced Pressure Zone Device (RPZD) – Suitable for situations in which there is a high hazard level. This example being a major agricultural property that utilises chemical and fertiliser injection into the irrigation lines.

Picture: (below) A much smaller (50mm) RPZD that is utilised to protect not only the resource but also preventing cross connection with the shared domestic supply.



NRETAS recommend a double valve testable device. This device is two independently acting non-return valves arranged to be force-loaded to the closed position. These devices need to conform to Australian Standards AS 2845 and AS 3500.1.

Responsibility of the Property Owner

In the NT, pollution of groundwater and surface water is an offence under both the *Water Act*

1992 and the *Waste Management and Pollution Control Act 1998*. For anyone that has a Chemigation system installed, appropriate backflow prevention must be incorporated. Backflow can result in a public health risk if it allows pollutants or contaminants such as chemicals to enter local groundwater systems utilised by many rural residents for drinking water supply.



Another effective form of backflow prevention is to utilise a break tank that has an air gap to ensure contamination of the resource can not occur.

Where Can I Get One?

It is important to choose the right device specific to your situation. Advice on installing, replacing and maintaining these devices can be sought from certified plumbers or system retailers. Price ranges from approximately \$2000.

Further Information:

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