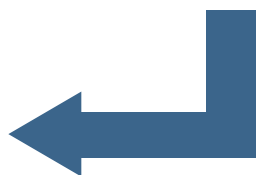




# RENMARK IRRIGATION TRUST FACTSHEET

## Fouling Growths

Fouling growths in water pipelines is a common problem around the world and is very difficult to manage. Typically, these growths clog pipes and filters, damage pumps and valves and greatly increase infrastructure operating and maintenance costs.



### What Causes the Problem

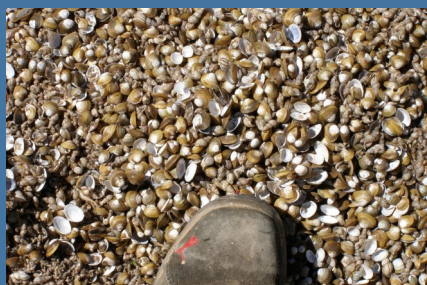
Typically, these organisms are sucked into the distribution system as microscopic or extremely small bodies and are virtually impossible to filter out. These bodies then germinate and attach to the pipeline walls and other fittings, rapidly growing under warm conditions.

### The Effects

Depending upon the time of the year and where the water is taken from along the delivery pipeline, irrigators can have quite variable results. Growths can build up along the pipeline walls and on fittings during the warmer weather. When there is a rapid increase in demand for water, typically in Spring, the increased velocity will rip off clumps of these growths. These will then collect in filters, blocking them and necessitating increased back-flushing and maintenance. The problem tends to be greater for irrigators towards the end of the delivery lines.

RIT's 1300 domestic consumers and organic growers means that traditional chemical treatments are an unacceptable solution.

### Two Common Growths in the Riverland



#### Freshwater Shellfish and Snails

These are a natural part of our river's ecosystem that enter the water pipelines as extremely small bodies and then grow.



#### Bryozoans

A range of minute animals which clump together in strands forming colonies.

All these organisms thrive in warm water conditions and being filter feeders, grow rapidly where constant water flow brings them a steady supply of microscopic food particles.

### A Difficult and Common Problem

There has been an enormous amount of research around the world, including in Australia to try and find cost effective reliable methods to control these organisms. While this is relatively easy when dealing with small water volumes or chlorinated drinking water, it is extremely difficult when dealing with large water volumes.

The most difficult scenario is with irrigation water where the typical control measures are either prohibitively expensive or have significant chemical residue issues. To complicate things, the untreated river water RIT supplies for irrigation purposes is also used for domestic purposes by about 1300 customers and also by organic growers. In both cases, the chemical residues from treatment are likely to be unacceptable. Unfortunately, despite all the research, no effective solution has yet been found. RIT continues to monitor the research.

## RIT's Problem

The problem is a huge challenge. The fouling growths line RIT's 144 km of pipework, effectively reducing the diameter and potentially the flow; maintenance is continuous and ongoing. Pipelines are regularly flushed where feasible to remove as many of the growths as possible. This must be done when water demand is low to minimise supply interruptions. Our environmental watering program also assists with the flushing.



Environmental watering has helped with the flushing of fouling growths from pipelines



Bryozoa clogging a water meter filter



Shells removed from an Irrigator's filter

## Minimising the Impact

Unfortunately, the only practical remedy to deal with the problem is for irrigators to prevent the growths entering their systems by ensuring filters are properly designed and of adequate capacity. It is important to keep in mind that under certain conditions, such as a sudden increase in water demand causing the growths to be dislodged from the delivery pipework, the amount of material to be filtered out can be quite high.

Systems need to be over-designed to cope with these sudden influxes and unfortunately many older installations either do not have adequate capacity or are less efficient. It is also important to note that many filter manufacturers have now recognised the importance of this need for greater capacity and have updated their designs and recommendations.

The only practical remedy to deal with the problem is for irrigators to prevent the growths entering their systems by ensuring filters are properly designed of adequate capacity, and well maintained.

It is also extremely important to ensure that filters are properly maintained and regularly cleaned. Self-flushing systems are the most effective. These must be regularly checked to ensure that the velocity of water providing the flushing is enough to effectively clean out the blockages. It is common for growths to only be partially removed and over time the back flushing then becomes increasingly ineffective.

If you are experiencing ongoing problems, it is recommended that you have your system supplier advise on suitable upgrades and modifications to minimise the impact of these growths.

***We thank CIT for agreeing to share a large portion of this information***