



Fact Sheet - Fouling Growths

Pipeline Fouling Growths: A difficult and common problem

The growth of 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. In the Riverland two basic types of growth cause most of the problems. The first is a number of species of freshwater shellfish and snails; the second are bryozoans, a range of minute animals which clump together in strands typically 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.

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 CIT supplies for irrigation purposes is also used by about 3,400 domestic 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.

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 of the fouling growths.

These growths provide challenges to both growers and CIT. Depending upon the time of the year and where the water is taken from along the delivery pipeline, growers can have quite variable results. Growths will build up during the warmer weather along the walls of the pipeline and on fittings. Typically, in spring when there is a rapid increase in demand for water, the increased velocity will scour the pipelines, ripping 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 growers who take their water towards the end of the delivery lines.



Bryozoan growth totally blocking a filter.

The problem is a huge challenge for CIT. The fouling growths line the nearly 500 km of pipework, effectively reducing the diameter and therefore restricting flow. The cost of pumping is then increased, as it is for maintenance which is continuous and ongoing. Pipelines are regularly flushed to remove as much of these growths as possible. This must be done when water

demand is low to minimise supply interruptions.



Shells flushed from a CIT main line during maintenance operations.

[Minimising the impact of these growths.](#)

Unfortunately, the only practical remedy to deal with the problem is for growers 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 the periodic 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.

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.

This information relates to the Berri, Cadell, Chaffey, Cobdogla, Golden Heights, Kingston, Loxton, Lyrup, Moorook, Mypolonga, Sunlands & Waikerie Irrigation Trusts Inc.

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