

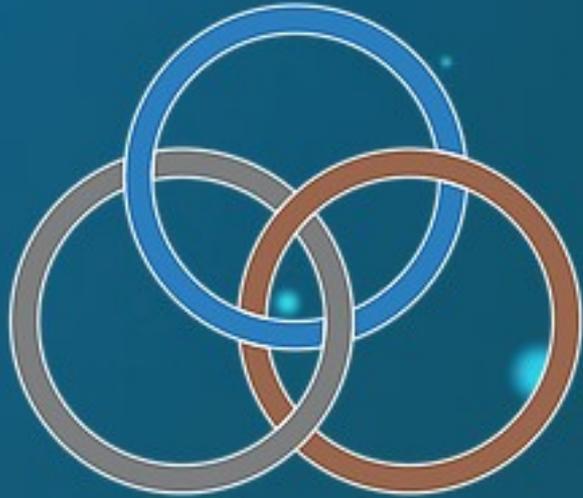
30th June 2020



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SYSTEMS PTY LTD

BION – end to end solutions for your water disinfection needs





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Water Distribution Health After COVID



The issue at hand

Many government departments and regulatory bodies have identified risks associated with buildings being left dormant.

ABCB

Water Services Association

American Water Works Association

ESCMID (European)



The issue at hand

Since the COVID lock down, many buildings have been disused or underutilised.

This leads to no/low water flows in the WDS, creating stagnation.

Stagnation creates the perfect environment for bacterial proliferation.

Why?



The issue at hand

Stagnation creates the perfect environment for bacterial proliferation.

Why?

Stagnant water has low oxygen levels and no oxidising biocide present.

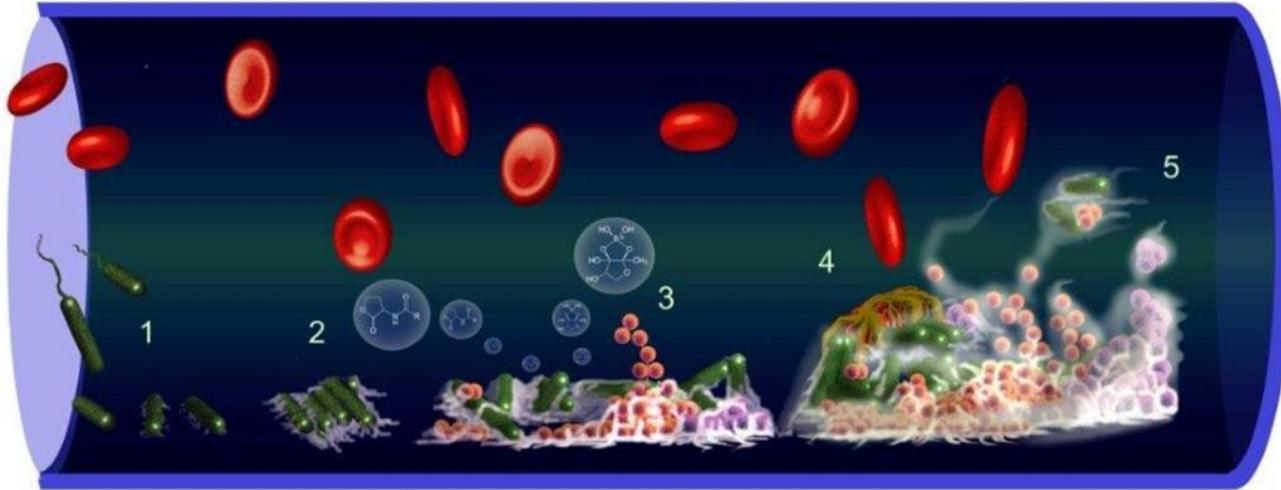
Oxygen is consumed within the WDS and not replaced.

Oxidising biocides (chlorine) react and break down – Again, not replaced

This leads to the perfect opportunity for biofilm growth



Five Stages of biofilm development



Stage 1
Initial
attachment

Stage 2
Irreversible
attachment

Stage 3
Maturation

Stage 4
Advanced
maturation

Stage 5
Dispersion
CYCLE repeats



The issue at hand

The second part of this issue:

Opportunistic bacterium (*Pseudomonas*, *Legionella*, etc) find it much easier to attack people with a reduced immune response.

- Older people
- Babies
- Persons with pre-existing health conditions
- People who don't exercise, drink, smoke, use recreational drugs, poor diet
 - **AND**



The issue at hand

The second part of this issue:

Opportunistic bacterium (*Pseudomonas*, *Legionella*, etc) find it much easier to attack people with a reduced immune response.

- **AND**

- Do not come in regular contact with stray RNA
- Excessive use of sterilants.

Meaning?

People in isolation, continually sterilising themselves and surfaces they touch have a weakened immune system!



The issue at hand

Wrapping this section up:

People with heightened risk of infection, then go back into highly infected buildings.

Greatly increased opportunity for illness in the community



Risk Mitigation

First Step:

Water testing – Find out what is going on.

Need micro & chemistry tests.

To get a true picture of general health of the WDS, test **BEFORE** flushing or other remediation work is carried out.



Risk Mitigation

Chemistry

- pH
- Electrical Conductivity
- Total Alkalinity
- Total Hardness
- Chlorine – Free
- Chlorine - Combined

Microbiology

- HCC
- Heterotrophic Colony Count
- L. pneumophila
- L. spp non pneumophila
- Total Legionella
- Pseudomonas spp



Risk Mitigation

Ensure the persons carrying out the sampling and testing are competent.

Chemistry testing needs to be done onsite

Microbiology is done off site – at a laboratory

If samples are not taken correctly, they will give invalid results

Likewise, if onsite testing is not performed correctly, is a waste of time



Risk Mitigation

After the results come in:

Deciding what to do.....

The recommendation is to flush for a minimum of 30 minutes.

The reality is that flushing is more of a feel good, or tick box exercise.

It fixes the symptoms NOT the issue.

It ***may*** reduce the planktonic organisms in the WDS but will have no or very little effect on the sessile organisms in the biofilm.

Within hours the biofilm will have reinfected the water in the system



Risk Mitigation

After the results come in:

What needs to be done to the WDS is dependant on the results of the testing.

Most important:

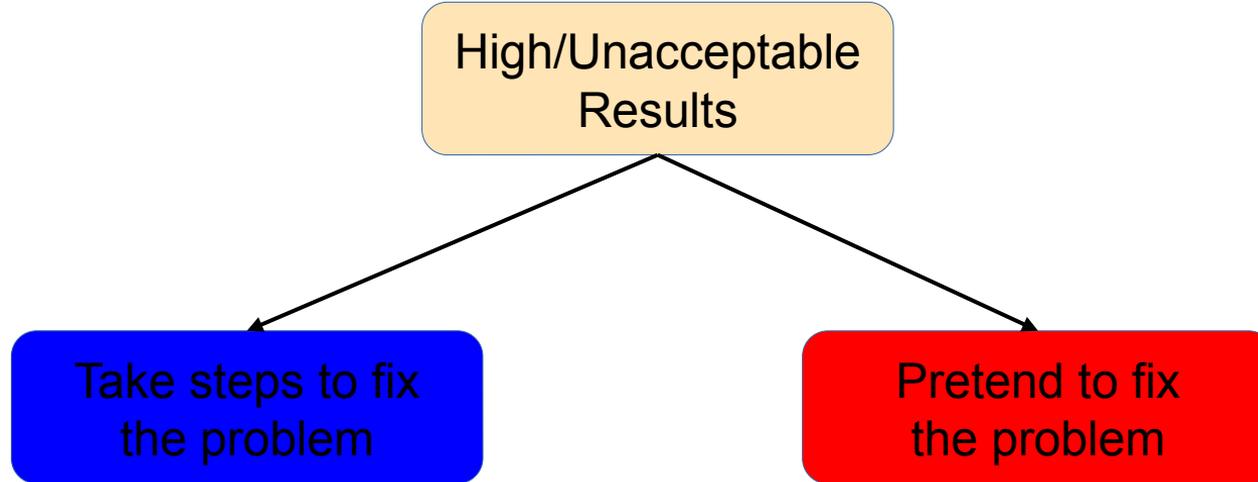
Understanding and interpreting the results.

Get assistance with understanding the results of the testing. – To a skilled person the results will be like a road map, giving a clear indication of where to go and getting you safely to the destination.



Risk Mitigation

What to do..



Risk Mitigation

We will only discuss fixing the problem!

Short term

- Carry out remediation works – recommended, chemical disinfection. Use dose points installed in beginning of WDS.
- Remember anything you do is a temporary fix. Even a severe chemical dose will not remove the biofilm.



Risk Mitigation

We will only discuss fixing the problem!

Long term

Install a recognised method a systemic + residual disinfection.

Get a Water Risk Management Plan written.

Regular follow up testing to make sure the plan is being adhered to.



**Water sampling and testing course
available on line at:
<https://widereach.com.au>**



**Thank you for
your attention**

Questions?

