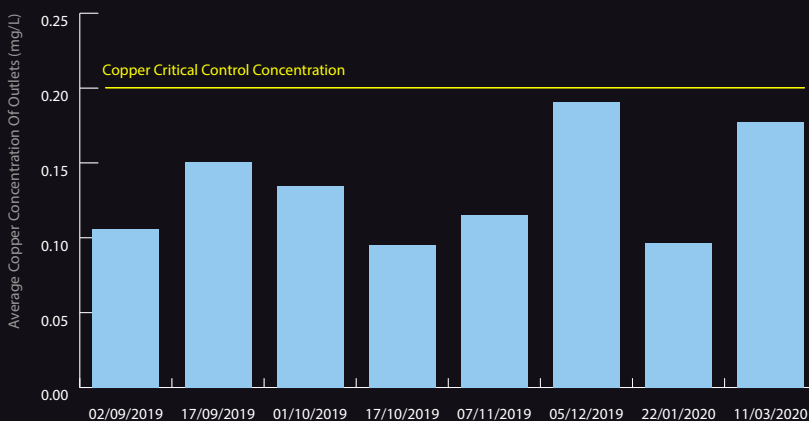


## Localised low-flow water treatment for the control of disease causing bacteria

The ProEconomy Orca systems control Legionella and other bacteria for multiple industries with a starting flow of 5 L/Min. Unfortunately, the system struggles with anything less than 5 L/Min and is quite large which makes it impractical for smaller settings such as wards, houses and specific outlets. This has led to the development of a compact system that can treat from 0 – 20 L/Min that can be used in these settings.

A site had previously had problems with *L. pneumophila* Serogroup 1 and other systems such as UV were unable to control it. On 2nd September a prototype ProEconomy Ray system was installed which treated the incoming mains to the house. The aim would be to dose between 0.02 – 0.1 mg/L of silver(2) (as advised for drink water by WHO) and 0.2 – 0.2 mg/L for copper(1) (As regulated by the DWI).

Average Copper Concentration of Outlets Tested for Legionella since Installation of Ray System

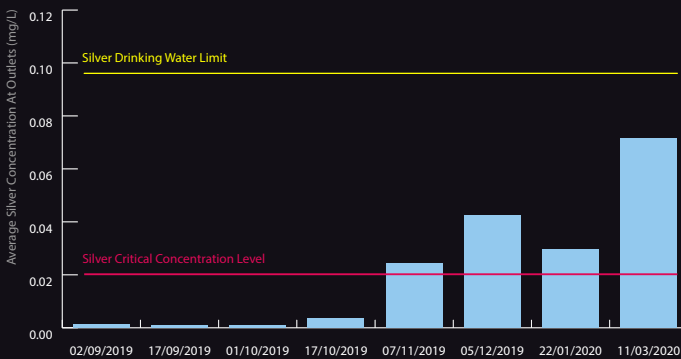


*“The Ray system dramatically reduced the CFU/L of Legionella as well as reducing the outlets that were contaminated.”*

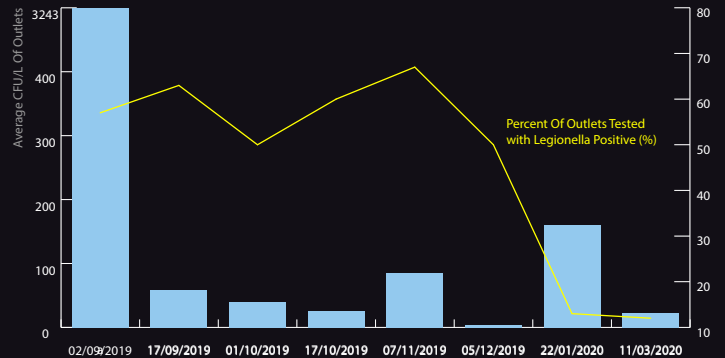
- ✓ Cost-effective
- ✓ Low maintenance
- ✓ Long-lasting

Initially there was low silver which is likely due to the silver being consumed by the biofilms and Legionella, however the longer the system was installed the more silver was found at the outlets due to the biofilms being removed. By November the silver was above the critical control concentration of 0.02 mg/L. The copper was consistently dosing at around 0.15 mg/L which is just short of the critical control concentration for copper (0.2 mg/L). The copper and silver dosing are currently tied together so if the dosing of copper was increased so would the dosing of silver. This would create an issue with the silver going above the maximum concentration advised by the WHO for drinking water.

## Average Silver Concentration of Outlets Tested for Legionella since Installation of Ray System



## Average CFU/L For Outlets Tested for Legionella with the Positive Percentage of Outlets Tested



The highest count of Legionella on 02/09/2019 was over 10,000 CFU/L, with the average for all outlets tested coming in at 3243 CFU/L. The CFU/L has decreased since the system was operational with the number of outlets contaminated decreasing as well. As of 11/03/2020 there was only 1 outlet with a count of 180 CFU/L.

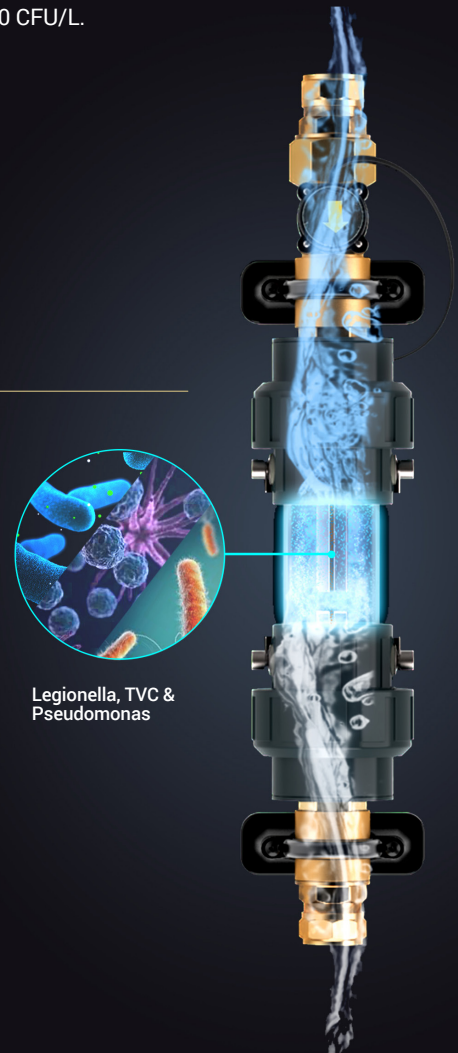
## Conclusion

The Ray system dramatically reduced the CFU/L of Legionella as well as reducing the outlets that were contaminated. The silver concentration increases as Legionella drops which is likely due to there being less biofilm absorbing the silver. The time taken to remove Legionella was longer than we would expect with an Orca system, however this is likely due to struggling to keep the copper above critical control concentration. Overall, the results show that copper and silver being dosed via a Ray system are able to control Legionella in a water system.

For further specification and pricing contact [sales@proeconomy.com](mailto:sales@proeconomy.com)

# ProEconomy

Get in touch on 01525 854 111 or visit [www.proeconomy.com](http://www.proeconomy.com)



Legionella, TVC & Pseudomonas

### Appendix:

Laboratories used 2030 Labs, ALS Environmental

- <http://dwi.defra.gov.uk/consumers/advice-leaflets/standards.pdf>
- [https://www.wqa.org/Portals/0/Technical/Technical%20Fact%20Sheets/2015\\_Silver.pdf](https://www.wqa.org/Portals/0/Technical/Technical%20Fact%20Sheets/2015_Silver.pdf)