

**GUARDIAN**  
Air & Water Hygiene Specialists



A WCS Group Company

# Intelligent Precommission Cleaning



## BG29i - Intelligent Precommission Cleaning

**BG29i is Guardian Water Treatment's intelligent precommission cleaning (PCC) package, incorporating innovative corrosion monitoring technology to provide an industry-leading approach that speeds up the PCC process, combats pipe degradation and reduces uncertainty at handover.**

Ensuring compliance to BSRIA's BG29 2020 – Precommission Cleaning of Pipework Systems, by utilising the award-winning Hevasure 24/7 monitoring system, a true picture of condition is available throughout PCC and beyond, allowing for early identification and resolution of problems.

Closed circuit HVAC systems supported by Guardian's BG29i package will get through PCC faster, begin life in the best possible condition, work at their optimum and breakdown less.

### BG29i

**Closed circuit HVAC systems supported by Guardian's BG29i package will get through PCC faster**



### Experts in precommission cleaning:

Guardian Water Treatment is an industry leader in the field of PCC, supporting clients through the whole process – from advice on water system design, to flushing, dosing, commissioning and handover.

With the addition of intelligent monitoring to this mix, the fallout of common interventions can be swiftly identified and fixed, saving considerable time and money.

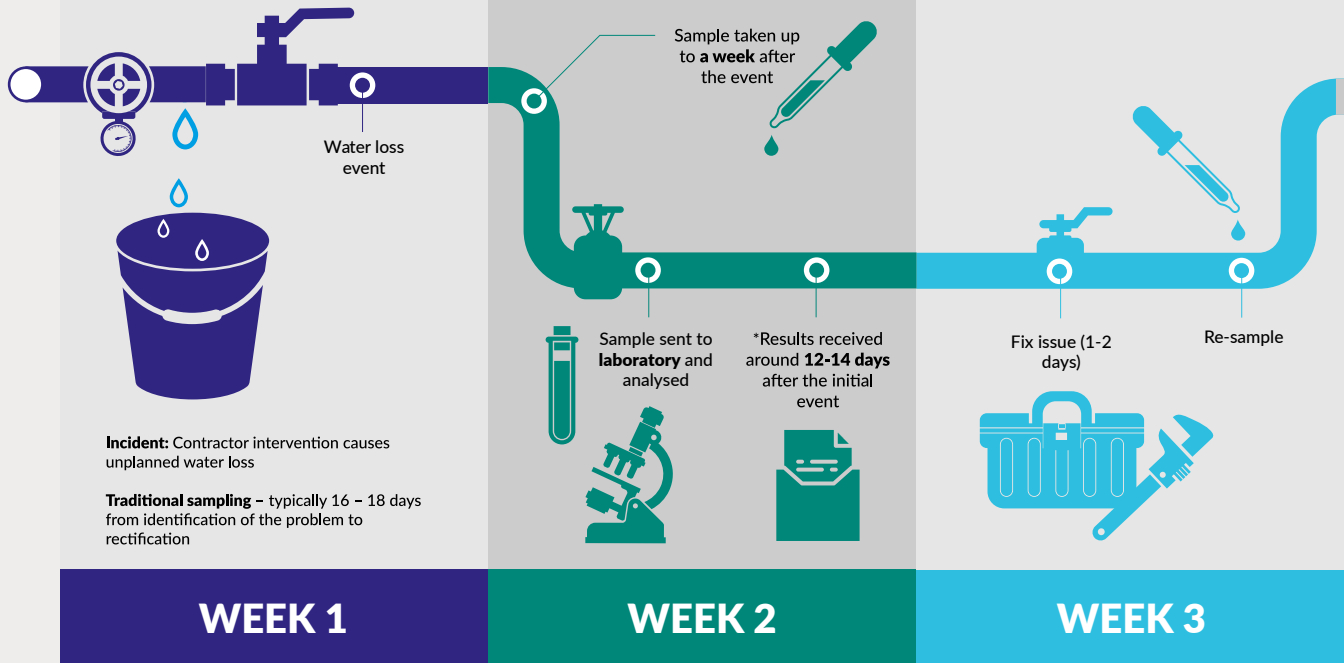
The Hevasure system tracks a range of parameters that signify corrosive conditions – such as dissolved oxygen, pH, pressure and corrosion rates. Responsible parties are immediately alerted to any changes, meaning problems can immediately be acted upon.

Compared with sampling alone, the traditional means of checking condition during PCC, this approach is far more accurate and quick. Changes in condition are sent directly to the right people - there is no need to wait for laboratory analysis, a process that can take a number of days.

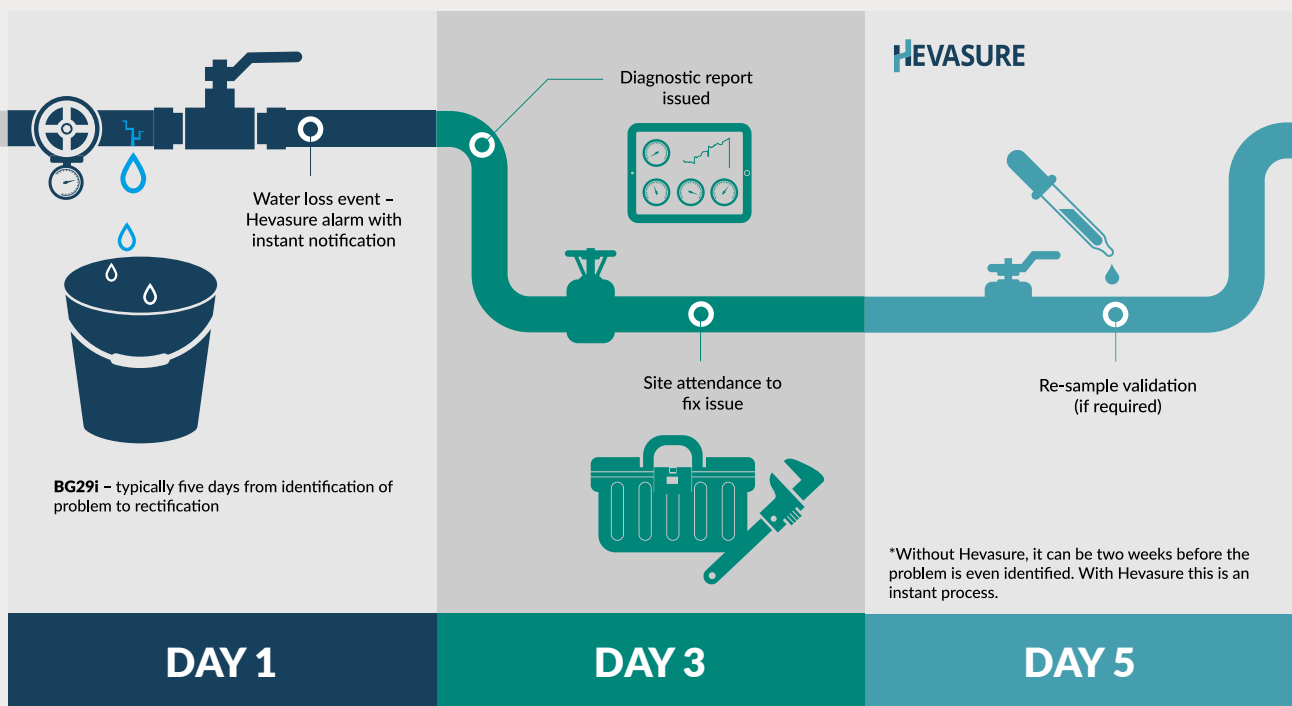
All this leads to smoother PCC and more confidence at the point at handover.

# Swift resolution of intervention caused issues

## Without Hevasure



## With Hevasure







## Improve sustainability

Pre-commissioning cleaning is the most water (and chemical) wasting process in a building's construction. In the absence of accurate data, PCC engineers have little choice but to adopt a heavy-handed approach to flushing and chemical dosing, which apart from being wasteful, can also cause pipe degradation.

Water is a resource that should be preserved and its delivery to a building uses energy and therefore has a carbon footprint. Recent figures from Thames Water state that 19.2kg of CO<sub>2</sub> is produced for every ml of water, rising to 111.9kg for wastewater. In terms of energy usage, this translates to 525 kW h per ml for water coming into a building and 234 kW h per ml for water going out.

By having a true picture of system condition, flushing and dosing can be reserved for when it is actually needed, rather than a knee-jerk reaction to an assumed problem. Catastrophic failure, which would lead to full system water loss and subsequent remedial cleaning, is avoided.

Using real-time monitoring during PCC and beyond translates directly into reduced carbon footprints.

### What is precommission cleaning?

Precommission cleaning (PCC) is designed to prevent blocked pipes, leaks, failures, contamination and high energy consumption in closed circuit water systems. The system is flushed out and cleaned with chemicals where necessary to ensure the pipeline is kept free from any contamination from the outset.

For facilities and building managers, PCC provides an assurance that the integrity of the building's water system has been thoroughly tested for potential problems and ready for operation.

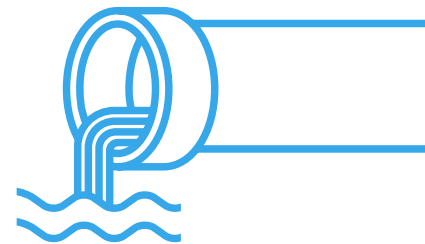
### Why is PCC so crucial?

Mistakes at this stage can lead to corrosion issues down the line. This can potentially shorten the lifespan of pipework and the associated HVAC plant. Ultimately, this could result in spiralling costs and inefficiencies for the people in charge of the subsequent closed circuit system – whether issues stem from before or after handover.



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**111.9kg**  
for waste water



**525 kWh**  
for water coming in



**234 kWh**  
for water going out



## Handover and beyond

At the point of handover, monitoring allows building maintenance teams and FMs to be confident in the system they are being left with. This is key where there are disputes over who, or which part of a water systems commissioning and maintenance has caused a specific problem. We have saved our customers hefty repair bills using Hevasure's 24/7 remote monitoring solution by accurately attributing a specific activity to a problem and a liable party.



## BG29 2020 – new guidance in precommission cleaning

In 2020, BSRIA updated BG29 to reflect significant developments in technology – namely the advent of real-time condition monitoring which is changing the face of water system management.

Cloud-based data acquisition systems and high-quality sensors means that, today, a wide range of parameters can be remotely detected enabling the execution of more effective service interventions, while preventing corrosion.

Not only is the approach up to the minute, it also focuses on all the elements that can signify corrosive conditions. Hevasure's intelligent monitoring technology accurately identifies the presence of dissolved oxygen, something that sampling cannot successfully achieve. While we have always understood that oxygen causes corrosion – either directly, or indirectly as the precursor to Microbial Induced Corrosion (MIC) - until Hevasure, there was no way to successfully detect its presence.



## BG29i – taking control of your closed-circuit water system

For FM's and building managers a key attraction of our BG29i package approach is control and transparency.

By having a true, instant and accurate picture of system condition during PCC, the process is demystified, allowing Guardian Water Treatment to take the best course of action for your system in the quickest possible timeframe. We can also prove that the works we carry out are successful.

All this leads to closed circuit HVAC systems that operate efficiently and are therefore more likely to meet their design-life and sustainability targets.

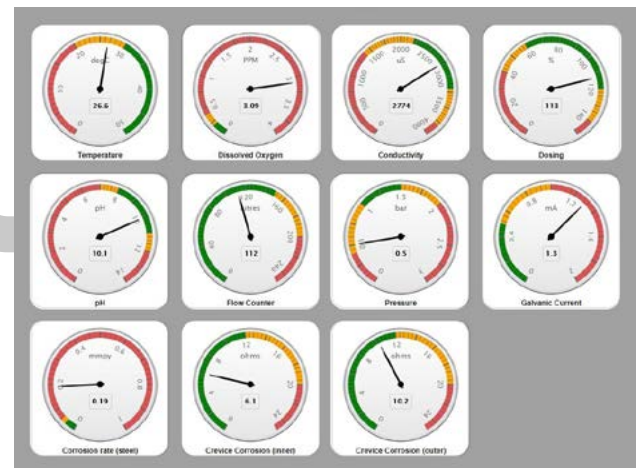
## Hevasure explained

Hevasure's state-of-the-art 24/7 monitoring solution detects a range of parameters that signify corrosive conditions, including dissolved oxygen, pH, pressure, inhibitor levels, corrosion rates.

The fully integrated system incorporates a wide range of high-quality sensors connected to a sophisticated data acquisition system. Live data is relayed up to the cloud where it can be viewed via the Hevasure dashboard on laptops and mobile devices.

### Parameters Hevasure monitors include:

- Dissolved oxygen
- Make-up water flow
- Pressure
- Temperature
- Conductivity / chemical dosing level
- pH
- Galvanic currents (related to corrosion rate of steel)
- Crevice corrosion



Any event, whether planned or unplanned (such as leaks or loss of pressure), is flagged on the inbuilt charts, allowing PCC and maintenance teams to keep electronic records all in one place.

### Hevasure benefits:

- Readings are taken every 15 minutes, 24/7
- Clients have direct-access to Hevasure dashboard
- Alerts sent to responsible parties' inbox if critical levels are exceeded
- Reports show trends during a period, with recommendations to keep a water system healthy
- Real-time monitoring of key parameters, no waiting for expensive lab results
- Instant notification of unplanned events, such as water loss





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