



## Case Study: Water treatment for Low Temperature Hot Water (LTHW)



### The project

When a Facilities Manager (FM) company took over a new site, there were issues with the water quality in the heating system. Workers on site had noticed small leaks in the pipework and visual evidence suggested a problem within the water.

The FM Company did not have the history of the site, however they were assured by the client that the systems were well maintained, dosed and tested regularly.



### The solution

In order to understand what was actually happening within the pipework, Guardian carried out full system chemistry testing, necessary to identify potential issues. Chemistry testing is very useful for quickly assessing a water system when taking over a new site; historical issues can sometimes take years to surface. Following the testing, Guardian provided the client with a full summary of the exact state of the water. We use a UKAS laboratory to provide independent reporting.

Chemical testing showed that the ammoniacal nitrogen content was elevated and potentially sufficient to cause stress cracking in the stainless steel, brass and copper. The pH level was high, which increases the risk of corrosion of aluminium components. The high pH may have been as a result of incorrect corrosion inhibitors, however there was no inhibitor left in the system at this point.





## The outcome

Poor quality water was removed by flushing, then the system was checked and re-dosed. Guardian provided a full support package, including the discharge consent and carried out the works over several days so water temperature was not lost on the heating. Once completed, the heating system was then dosed with an aluminium safe corrosion inhibitor and is now checked on a six monthly basis to ensure parameters remain satisfactory.

The leaking pipework was replaced by the FM Company and no further issues have been reported, leaving site with a clean and efficient system which maximises the plant life.

**Common problem:** Modern heating and chilled systems dictate the quality of the re-circulating water to ensure these systems operate at optimum efficiency. These systems often have mixed metallurgy and require careful selection of chemical inhibitors to ensure that all components are fully protected.

Poorly maintained systems can result in corrosion, scaling, suspended solids and bacterial infection. Seasonal conditions cause stagnation which can encourage bacterial growth and localised deposition and corrosion under 'no flow' conditions.

- Full system chemistry testing
- Independent UKAS laboratory report
- System flushing
- Six-monthly checks

### Guardian Water Treatment Ltd

Head Office  
Units 9 & 10  
The Capricorn Centre  
Cranes Farm Road  
Basildon  
Essex  
SS14 3JJ

**Tel:** 01268 287477  
**Fax:** 01268 287156  
**Email:** [info@gwtltd.com](mailto:info@gwtltd.com)  
**Web:** [www.gwtltd.com](http://www.gwtltd.com)

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