

## Case Study:

### HWS Restorer – Oakleigh Elderly Peoples Home, Sutton

#### TECHNICAL DESCRIPTION

The application of Aqueous Logic HWS Restorer to recover the Hot Water Distribution System (HWS) at Oakleigh Elderly Peoples Home in Sutton, Surrey.

#### BACKGROUND

Oakleigh Elderly Peoples Home has a tank fed hot water system that was installed in the mid 1970s and uses two large indirectly heated hot water calorifiers that heat the domestic hot water. Over the years, the pumped recirculating hot water distribution system had become fouled with deposit build-ups to the point that approximately half of the 35 bedroom home was suffered from exceedingly poor hot water flow. In certain parts of the home flow was so bad that water had to be run for several hours to obtain hot water for bathing.

The option of re-piping would have been a highly disruptive undertaking for staff and residents. Due to the age and poor mental health of many of the residents it would almost certainly have required some temporary re-housing of residents adding significantly to the re-piping cost itself.

#### AQUEOUS LOGIC SOLUTION

In May 2005, Aqueous Logic undertook a demonstration project of a newly developed cleaning technology designed to resolve the types of problems being experienced at Oakleigh Elderly Peoples Home. The new cleaner, HWS Restorer, was specifically developed by Aqueous Logic as a safe but highly effective alternative to acid cleaning or re-piping.

#### PRODUCT DESCRIPTION

HWS Restorer is a non-toxic, pH neutral cleaner which is based on approved food additives. It can be drunk in its undiluted form without causing harm (we hope that no one will drink it but as it is intended to be used in domestic water distribution systems, we had to design for the worse case).

HWS Restorer is an excellent cleaner of iron and copper oxides. It has preferential activity towards iron and copper oxides and hence will not open up leaks by dissolving the pipework itself.

The product includes a stable blue tracer dye that makes drawing and flushing out of the cleaner easier as well as helping residents avoid using water when cleaner is present.

#### KEY FACTORS

- **50+ hot water outlets**
- **2 large hot water calorifiers**
- **pumped distribution system**
- **very poor heat & flow to 50% of outlets**
- **red/brown water and sediment from outlets**
- **problems caught under L8 regulations**

#### HWS RESTORER

- **non-toxic/pH neutral**
- **incorporates blue tracer dye**
- **zero COSHH**
- **dissolves iron/copper oxide deposits**
- **designed not to open leaks**
- **compatible with all usual HWS materials including galvanised steel and enamel**

## PROCESS

Prior to our works, we de-scaled the calorifiers using inhibited phosphoric acid. The calorifiers were storing water at correct temperatures but we de-scaled them to ensure that the HWS Restorer was not consumed by rust deposits at the bottom of the calorifiers. We introduced 125 litres of Aqueous Logic HWS Restorer to the hot water system and spent approximately two and half hours pulling the chemical through to all the hot water outlets. The hot water flow was exceedingly poor in much of the building. All the residents were in occupation during the works and were advised to not use taps that had blue water coming out of them. The HWS Restorer was left to circulate for two hours prior to flushing. As flushing proceeded, a steady and significant improvement in hot water flow was experienced. Due to the size of the calorifiers, the system was left to flush overnight and final flushing completed the next morning. A significant amount of rust was removed from the strainers on the thermostatic mixing valves, indicating that the blockages in the distribution system had been successfully dislodged, even if they had not been completely dissolved. Following the flushing, the hot water flow to all outlets was checked. Flow at all outlets was found to be excellent and the L8 requirement of hot water of 50°C within 1 minute of flow was achieved at all non blender taps throughout the home.

## COST COMPARISON – REPIPING VS CLEANING WITH HWS RESTORER

### Repiping Costs

- estimate of £28,000 for works
- estimate of £2,500 redecoration costs
- plus resident relocation costs

### HWS Restorer Costs

- £450 HWS Restorer (1:40 dosage)
- 2 man days labour (£500)

**Savings in excess of £29,500**

## SUMMARY

In essence, at market labour rates, the entire hot water distribution system was restored to essentially new operating condition without leaks for under £1000 in a little over one day, saving a minimum of £29,500 over repiping. The need to temporarily re-house residents or to make good decoration was completely avoided.

Six months after the cleaning, Oakleigh Elderly Peoples Home continues to have good hot water flow to all areas. The London Borough of Sutton is currently undergoing a program of works to restore other buildings' HWS distribution systems using Aqueous Logic HWS Restorer.

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