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# HOSPITAL BULLETIN

For Estate and Facilities Managers

## Legionella control

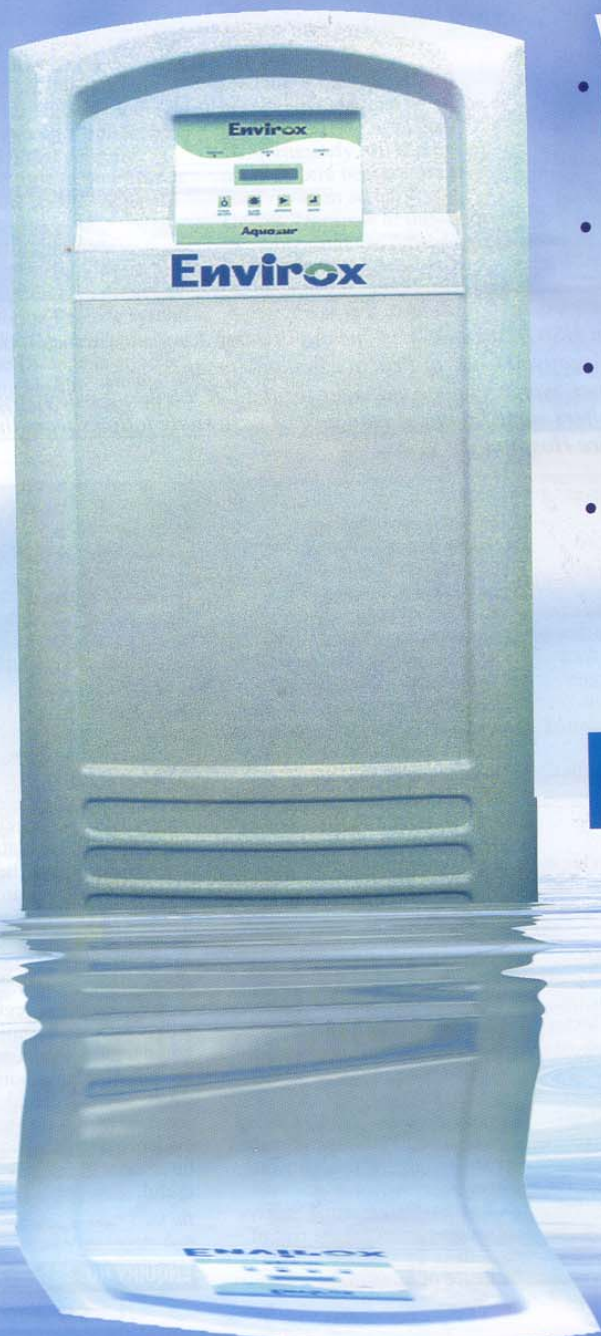


**The new guidelines  
have arrived at last,  
but what does it all mean  
in practical terms?**

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ENQUIRY NO. 111

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**A**t the outset it is important to stress that the following article explains the implications of the new ACOP which affect general water systems. Healthcare premises are still covered by HTM 2027 which insists that temperature is the primary method of control. However not all these sites are able to strictly adhere to this regime. In which case, alternative control methods may now be considered, in addition to the temperature regime, using the new ACOP guidelines.

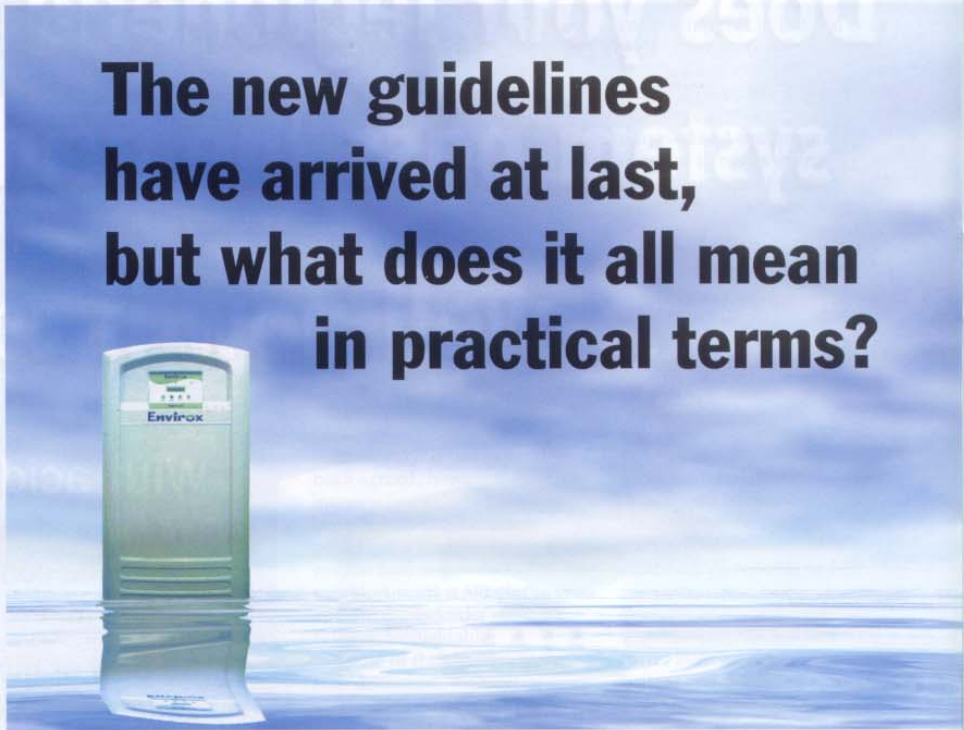
Under the new ACOP guidelines the use of temperature is no longer regarded as the only method for the control of legionella in hot and cold water systems. This is not just going to make life easier for many facility managers, but will also provide the opportunity to use alternative methods of control. Until the revision, temperature has always been advocated as the primary control method in these systems, but research has raised some concerns about the efficacy of the temperature regime.

In some domestic water systems a hot water regime alone may not be enough to control legionella, because dead-legs can develop in parts of the structure where raised temperatures are transient, or are simply not reached. In addition, higher temperatures increase the risk of scalding. A 1998 report by the Building Services Research and Information Association (BSRIA) also raises similar concerns.

**Key area of guidance**

Sites that continue to use a temperature system as their control method must now prove an established regime that can both achieve and maintain the temperatures required on a continuous basis. This is a key area within the guidance levels and is re-enforced by the HSE in their document MISC 150 'The control of legionellosis in hot and cold water systems' and also by Chartered Institution of Building Services Engineers (CIBSE) in their latest release of its Technical Memorandum No 13 (TM13) on "Minimising the Risk of Legionnaires' Disease".

While most calorifier systems are capable of achieving the required temperatures, because of the quantity of water typically used, not all can



**The new guidelines have arrived at last, but what does it all mean in practical terms?**

*With the replacement HS(G)70 guidelines due out in early January, just what do the changes to the new Approved Code of Practice actually mean?*

*Dr Noel Christopher, water hygiene manager for the UK's leading water hygiene company Aquazur, offers some practical guidance. A case study follows from the North Cambridgeshire Hospital.*

maintain these temperatures during peak usage times.

It is now the occupier's responsibility to prove that continual control can be achieved, even during the peak periods. Should the temperature fall out of specification, then alternative control strategies will need to be considered.

In the new guidance, should legionella be positively identified in a system, the likely course of action will be to review both the method of controlling legionella - temperature/chlorine dioxide etc - and the risk assessment. This will be carried out every time there is a positive.

According to the BSRIA report, during the last five years the building services industry has become increasingly aware that a high temperature regime is not always achievable and in some cases is not effective in controlling legionella, and so alternative strategies such as chlorine dioxide have increased in popularity.

Indeed, chlorine dioxide is the only treatment regime with the ultimate proof statement from the HSE in their document

MISC 150 which states that chlorine dioxide is able to control legionella within a system which has been persistently colonised.

However, chlorine dioxide is not something that can be taken to site in a drum. It needs to be generated on site, making it potentially hazardous to the handler. And as such there have always been objections to using it, particularly relating to COSHH issues. So to provide a safe and effective alternative for administering chlorine dioxide, a new system called Envirox was launched in the UK just over a year ago.

**Benefits**

In a nutshell, Envirox has all the benefits of chlorine dioxide, without any of the downsides - in particular, it has none of the health and safety issues previously associated with the generation of chlorine dioxide. Then add to that the following benefits:

- Improved Health and Safety, including reducing the risk of scalding
- Peace of mind in the

knowledge of operating within HSE guidelines

- A safe and environmentally friendly system, with no acid
- The life expectancy of a water system can be increased
- Continual control of legionella, other pathogens and biofilms 24 hours a day, 365 days a year
- Reliable, intelligent dosing ensuring correct treatment levels.

With the new guidelines removing the minimum 300 litre tank limit, all hot water systems are now subject to the regulations. Therefore a huge number of smaller hospitals and residential care homes currently excluded will need to take measures to comply.

In addition, the regulations will require all occupiers to retain treatment and monitoring records for a minimum of five years, so a system that enables constant monitoring to provide evidence of treatments, such as Envirox, will be extremely useful.

*The North Cambridgeshire Hospital case study appears on the facing page.*

**ENQUIRY NO. 353**



**S**uffering persistent problems with the blockage of the hospital mixer valve strainer filters, in March of 1999 the estates engineering manager at the North Cambridgeshire Hospital, David Davies, approached Aquazur for help. Following an on-site inspection it became clear the problem was due to an accumulation of biofilm in the strainer filters, and in the hot water systems.

Gary Sewell, Envirox senior engineer for Aquazur says: "Bearing in mind this was prior to the launch of Envirox in the UK, the first option we looked at was pasteurisation of the system. However we knew this would have no effect in actually removing the sessile bacteria (Biofilm). Chlorinating the system was another option, but again we felt that chlorine would have little or no effect in removing the sessile bacteria."

**Most suitable**

The third option, a multiple precursor Chlorine Dioxide system seemed to be the most suitable, as Chlorine Dioxide is effective in removing biofilm. However, David Davies had previously

## North Cambridgeshire Hospital - a case study



**Legionella beaters:** (left to right) Gary Sewell, Envirox senior engineer, Aquazur; David Davies, estates engineering manager, North Cambridgeshire Hospital and Mick Halpin, Envirox sales manager, Aquazur.

used this system at another hospital in the group where he is also engineering manager. "Unfortunately, we had to stop using it there because the precursor was an acid," says Davies. "Because of this, both its storage and use caused major implications under COSHH.

"However, I heard that Aquazur was just about to launch its Envirox system which I understood was non-hazardous. And seeing that chlorine dioxide was the best

and only solution to resolve this problem, we decided to wait the short period until the first ones became available," he added. In the meantime, David Davies increased the existing monitoring programme to ensure any problems could be identified and addressed.

Within a few weeks an Envirox unit, treating approximately 20m<sup>3</sup> of water a day, was installed at the North Cambridgeshire Hospital. The system was very carefully monitored over the following weeks, isolating small levels of Chlorine Dioxide at various outlets. "Within about five weeks, it was another story, the biofilm was almost completely gone, with 0.2ppm of Chlorine Dioxide isolated at every outlet," adds David Davies.

"And from just two months after installation in July 1999, right through to the present day

the chlorine dioxide levels at each outlet are maintained at between 0.3 - 0.5 ppm. We've never had any further problems with biofilm at the North Cambridgeshire since installation. Indeed the quality of the water has improved, the condition of the system has improved and no biofilm has been found.

**No compromise**

Gary Sewell concludes: "The water system at the North Cambridgeshire Hospital was successfully treated using the Envirox generated chlorine dioxide, and health and safety was not compromised as Envirox doesn't require dangerous or hazardous chemicals to act as precursors, and is therefore completely safe."



ENQUIRY NO. 112

# aes

analytical & environmental services

## Legionella Risk Assessment

AES provides a comprehensive service including legionella risk assessments, water service inspections, routine monitoring and maintenance programmes, cleaning and disinfection of water systems.

For further information contact Brenda Heppell at: Northumberland Dock Road, Wallsend, Tyne & Wear NE28 0DD.

Tel: 0191 296 8500 Fax: 0191 296 8560  
E-mail: [brenda.heppell@aes-labs.co.uk](mailto:brenda.heppell@aes-labs.co.uk)



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