

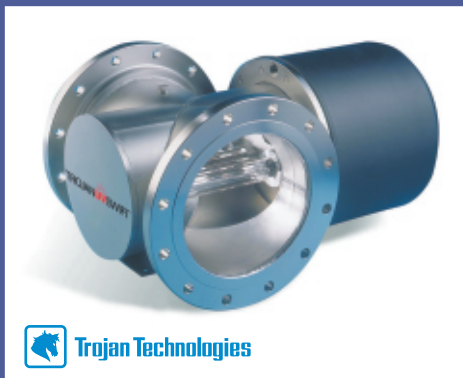


CIWEM

The Chartered Institution of Water
and Environmental Management

DISINFECTION FOR WATER SUPPLY – UV OR NOT UV?

NOVOTEL LONDON WEST HOTEL AND CONVENTION CENTRE
17TH OCTOBER 2006



Introduction

Effective disinfection is a critical requirement of water treatment to prevent the spread of waterborne disease. In the UK disinfection in water treatment has relied heavily upon chlorine. This situation largely prevails despite concerns over chlorination by-products. However, other approaches to disinfection are being implemented to reduce reliance on chlorine in treatment works or distribution.

At the treatment works there is renewed interest in UV as the primary disinfectant due both to its successful application in the USA for *Cryptosporidium* inactivation and its benefits in terms of reduced by-product formation.

General disinfection benefits from membrane processes are being gained where these are being installed, often primarily for *Cryptosporidium* removal, again with implications in relation to by-products through reduced chlorine doses. Water suppliers are turning increasingly to chloramination to

minimise by-product formation in distribution, where the majority of by-products are formed in most situations.

Efficient management of disinfection relies on good system design and operation. A key issue for chlorination is the design of the contact tank to minimise short-circuiting. A good knowledge of tank hydraulics is critical to ensuring that effective contact times are maintained.

Operation of disinfection systems needs to ensure that regulatory requirements are met. Worldwide, as well as in the UK, water supply regulators are promoting the concept of Water Safety Plans, which need to identify and effectively mitigate the risks associated with disinfection.

The conference will provide an up-to-date review of disinfection for water supply in the UK, with contributions from practitioners, regulators, suppliers and consultants. It will be of substantial

benefit to anyone involved in the design and operation of disinfection systems for water supply, by providing the latest information on conventional chlorine-based systems and developments to reduce the reliance on chlorine.

Venue

Novotel London West is situated in the centre of Hammersmith, which has a wealth of attractions to offer the visitor. Hammersmith's excellent public transport connections make it easy to reach the heart of London by bus, tube or taxi. Hammersmith Underground is just 3 minutes walk from the hotel.

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Programme

09.00 – 09.45 Registration

09.45 – 09.50 Chair Introduction

Tom Hall, WRc and CIWEM
Water Quality & Supply Panel

09.50 – 10.20

Computational Fluid Dynamics (CFD) Modelling of Disinfection Tanks and Water Storage Structures

Brenda C.T. Lee et al,
University of Swansea

- Introduction to CFD modelling and why it is being used for modelling water treatment processes
- Examples of the application of CFD modelling to disinfection contact tanks and to water storage structures
- Graphical representations of the simulation results will be used to illustrate the behaviour and the flow pattern of the hydraulics revealed by the models, and this will show some of the benefits of using CFD modelling for the water industry

10.20 – 10.50

Disinfection Indices – Regulating disinfection control in Scotland

Matthew Bower,
Drinking Water Quality Division

- Balancing public health with consumer acceptability – a regulatory perspective
- The disinfection index – the background and how it is being used in Scotland
- How are disinfection indices calculated?
- What does it all mean? - A review of the strengths and limitations
- Linkage to the regulatory investment programme in Scotland

10.50 – 11.15 Morning Break

11.15 – 11.45

Disinfection within a Drinking Water Safety Plan Context

Simon Cole, Wessex Water

- What are Drinking Water Safety Plans
- Why are companies preparing DWSPs - What are the drivers
- Where and how does disinfection fit within a DWSP
- An example DWSP
- Benefits of the DWSP approach

11.45 – 12.15

The impact of disinfectant choice on DBP formation

Simon Parsons, Cranfield

- Overview of DBP formation
- Recent UK sampling data on THM and HAA formation from chlorinated and chloraminated supplies
- What effect will UV have on DBP formation

12.15 – 12.30 Discussion

12.30 – 13.30 Lunch

13.30 – 14.00

Chloramination as a disinfection method - The Scottish Perspective

Margaret McGuinness, Scottish Water

- Rationale for the introduction of chloramination over large areas of Scotland, the implications of introduction and the benefits gained.
- There has been no real downside to its introduction and continued use, but the presentation will cover the things that need to be monitored and checked to stop problems developing

14.00 – 14.30

Ultrafiltration – An absolute barrier for disinfection?

Richard Lake, Veolia

- During the AMP3 period a large number of membrane plants were installed within England and Wales for Cryptosporidium control. These did not rely on the technique of continuous on-line monitoring to show compliance, but on a one-off daily test to show that the membrane was intact.

- Membranes do not only remove Cryptosporidium, but will remove bacteria and in the case of Ultrafiltration, will also remove viruses. Therefore, they are effectively disinfecting the water.
- As a company we have accepted that UF can be considered to be disinfection. However, there is a difference in the way this is monitored as we have to rely on the membrane integrity testing rather than an on-line measurement of chlorine residual.

14.30 – 14.55 Afternoon Break

14.55 – 15.25

UV implementation, Crypto inactivation, dose validation

Jim Cosman,
Trojan Technologies Inc; Canada

- Review of the concept of bioassay validation of UV systems. The presentation will examine various UV validation protocols and implications for UV implementation.
- Overview of dose control and monitoring strategies. Identification of key operating parameters and operation and maintenance activities to ensure dose delivery.
- An examination of UV disinfection applications. A review of selected case studies from across the globe examining the rationale for selecting UV and the regulatory approvals for these applications.

15.25 – 15.55

Detecting UV treated Cryptosporidium oocysts in water supplies

Huw Smith, Scottish Parasite Diagnostic Lab

- UV doses as low as 10 mJ.cm-2 can inactivate Cryptosporidium oocysts
- Currently there is no method for detecting lethal UV damage in Cryptosporidium oocysts
- We developed a simple laboratory method to detect lethal UV damage (caused by the formation of cyclobutyl pyrimidine dimers) in the nuclei of UV disinfected sporozoites.
- The usefulness of the assay will be demonstrated, pictorially

15.55 – 16.15

Discussion and Close

CO2mmitment Scheme

We strive to reduce both the carbon footprint and the environmental impact of the events we hold. As a member of CO2mmitment: Climate Action in Calderdale, AquaEnviro pledges to take determined action to reduce our carbon emissions, whilst funding tree-planting to compensate for CO2 pollution resulting from our business activities. One tree is planted for each participant in our conferences and events.

Forthcoming Events 2006

Sensor Technology in the Water Industry

2nd November 2006, Telford

Preparedness for Extremes

8th November 2006, London

11th European Biosolids & Biowastes Conference

13th-15th November, 2006, Wakefield

Periodic Review

16th November 2006, London

The Land-use and Water Series Farming and Water

22nd November 2006, London

New Developments in Analysis

February 2007, Scotland

Contact: **Frances Eldon**, Aqua Enviro

Email: franceseldon@aquaeenviro.co.uk

Tel: **01924 257 891**

Contact: **Bob Earll**, CMS

Email: bob.earll@coastms.co.uk

Tel: **01531 890 415**

Booking Form

Delegate Details

I would like to register to attend the **'DISINFECTION FOR WATER SUPPLY – UV OR NOT UV?'** conference being held on the 17th October 2006 at the Novotel London West Hotel and Convention Centre.

Title _____

Name _____

Organisation _____

Job Title _____

Address for Correspondence _____

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Tel _____

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The Chartered Institution of Water and Environmental Management (CIWEM) is the leading Chartered body for those involved in sustainable management of the environment.

Delegates to this conference, on request, receive the Environmental Partner grade of CIWEM Membership free for a year. After one free year (either through this conference or another CIWEM event), there will be a fee to continue in this grade. They will also receive free copies of our magazine and have the opportunity to be involved in local CIWEM events and activities.

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Delegate Rate £195.00 (+VAT) = **£229.13**

Student Rate £100.00 (+VAT) = **£117.50**

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A charge of £40 (+VAT) will be levied for cancellations made up to 20 days prior to the event. Cancellations after this period will be liable for payment of the full fee. Payments should be received 30 days of receipt of invoice.

Signature _____

Date _____

Enquiries and booking forms directed to:

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