

# THE SEWER NETWORK: PREVENTING, REMEDYING AND HANDLING ABUSE

1ST JULY 2008 • THE QUEENS HOTEL, LEEDS

## INTRODUCTION

We are fortunate in this country to have an extensive network of over 350,000 km of sewers, much of it dating to the Victorian era. It is a tribute to the skills of the Victorian engineers that the sewers have lasted so long and remained in such good condition. But over the period the network has been in operation times society has undergone radical changes leading to changes in both the quantity and composition of the material we discharge to sewer. Population has boomed and is continuing to grow unchecked with a very uneven population distribution throughout the country, per capita water usage has increased by more than 80% and climate change has led to major changes in the pattern of precipitation. As many of our urbanised areas are served by combined sewerage systems which carry both foul sewage and surface water run-off they cannot always cope with the high flows that follow heavy or prolonged rainfall. When this storm water exceeds the system's capacity, sewage overflows into rivers or out from manholes and external drains and it can also overflow from drains into the inside of properties. Although the numbers of sewer flooding incidents are relatively low they are increasingly markedly with many water companies experiencing increases of between 30% and 100%.

Blockages in a sewer or the failure of a pumping station can also result in flooding. Changes in our lifestyle have also led to changes in the nature of material discharged to sewer and these can be major contributors to sewer blockage. In particular: fats, oils and greases (FOG) mix with other debris in the sewer and solidify to form a very hard coating on the inside of the sewer pipe. This build up of FOG causes a narrowing of the pipe and can restrict the flows, or form a complete blockage. Other causes include paper and cloth such as disposable nappies, that expand in water to block the sewer pipe and also sediments and silt from the roadways that settle in the sewer at low flows and the normal self-cleaning flow may be insufficient to maintain free flow and can build up causing a restriction.

Thus responsibilities for sewer blockage and potential flooding is shared between the Water Companies and the customer. The former must maintain the sewers and the latter must not abuse it by discarding FOG in the sink or disposing of chemicals such as paint thinners down the sink or toilet. Water Companies also recommend that other solids wastes such as baby wipes, cotton buds, tampons, nappies etc., should be treated as solids wastes and put in the bin, not flushed away.

At the same time there are also pressures on solids wastes with local authorities under pressure to divert solid waste away from landfill. In

response to this, some of them are encouraging householders to install kitchen waste disposal units by means of cashback offers. These local authorities justify this approach on the basis that it offers the opportunity to recover the embedded energy in the waste through anaerobic digestion of the sedimented solids.

In view of the increasing pressures on the sewer networks from a number of sources, it is the aim of this course to consider the role of the sewer in the 21st century as it comes under increasing pressure to accept a wider range of materials than originally intended. It will examine the increasing incidents of sewer blockage: the options available for remedying sewer blockages and the costs involved as well as the contribution of sewer blockages to flooding incidents. It will examine present and future pressures on the network to receive a wider range of solid materials such as food wastes, hospital waste and biodegradable municipal waste via food waste disposal units and who should pay for the costs of this facility. As well as considering the negative aspects of these practices it will also debate the potential benefits that might arise from increased organic loadings and methane recovery at the receiving wastewater treatment works.

## VENUE

The Queens Hotel is the most famous hotel in Leeds, and with its recent £10 million restoration, every telling detail within has been returned to its original art deco grandeur. The hotel has built a reputation for being the finest four star conference venue in Leeds.

Situated midway between Edinburgh & London, Leeds is within easy reach of all major routes. Located in the heart of the city centre by Leeds Train Station, The Queens Hotel is only 12 miles from Leeds/Bradford International Airport.

Venue, travel and accommodation details will be emailed to you upon registration.

SPONSORED BY



# Programme

## MAINTAINING AND OPTIMISING THE ASSETS

9.30 – 9.40

### Chairman's welcome

9.40 – 10.10

### Sewerage for the 21st Century - Lifestyle and Environmental Factors Affecting the Future Operation of our Sewerage Systems

Adam Dean, Mouchel

- Assessing sustainability within sewerage construction, operation and maintenance
- Assess the effect on the operation and maintenance needs of sewers arising from on-site re-use of grey water and reductions in water consumption of domestic appliances.
- Review the application of separate and combined sewer systems in relation to new construction and the adaptation of existing systems of both types to meet future needs.
- Energy audits of representative systems, reduction of energy consumption and opportunities for energy recovery.
- Forms of sewer construction and materials used, and changes that would improve sustainability

10.10 – 10.40

### Sewer Blockage, Deterioration and Flooding (Flood Risk Management Research consortium)

Prof Adrian Saul, The University of Sheffield

- The deterioration of buried underground drainage assets is increasing with time
- Climate change is likely to impact urban drainage systems
- Urban flood frequency is likely to increase
- Responses to solve the anticipated problems are required now

10.40 – 10.55

### Discussion

10.55 – 11.20

### Morning Break

11.20 – 11.50

### Prevention - keeping surface water above ground!

Liam Foster, Hyder Consulting

- Using source control to retain rainfall
- Providing additional capacity and life for below ground assets
- Reducing energy costs

## PROPRIETARY SOLUTIONS FOR TACKLING SEWER BLOCKAGES AND CORROSION

11.50 – 12.00

### Protecting Your Assets! A Case Study In Sewer Protection

Bob Hassall, Yara

- "Needless & Avoidable." Sewer corrosion will ultimately lead to the collapse of infrastructure, yet it can be easily prevented!
- This case study focuses on a "smelly system" which left untreated, collapsed, causing significant disruption to nearby residents and commuter trunk routes, and even more significant cost, all of which was avoidable.
- Yara Industrial is the world's leading exponent of septicity prevention chemical and dosing technology

12.00 – 12.10

### Emergency & temporary treatment solutions for preventing sewer abuse

Dr Richard Coulton, Managing Director, Silbuster

- The talk will cover the practical aspects of implementing emergency and temporary treatment solutions focusing on eliminating the problem at source.
- Technologies / Applications covered will include:
  - Solid Liquid Separation using both clarifiers and Dissolved Air Flotation (DAF)
  - Fats, oils and Grease Removal
  - pH Correction (by Acid & Carbon Dioxide)
  - Chemical Precipitation of Metals and other contaminants

12.10 – 12.20

### Preventing corrosion in the sewer network

Andy Wharton, MuSol Ltd

- Hydrogen sulphide not only produces an unpleasant odour but forms highly corrosive sulphuric acid on contact with water. This acid can cause major corrosion issues within the sewer network attacking both concrete and steel.
- The MuSol system prevents the formation of this acid by selectively reacting with the sulphides in the sewage but, unlike other oxidising agents, does not have any effect on other, beneficial, organic materials.
- The MPOX product is a liquid that can be injected directly into the sewage. It is formulated in such a way that it can have an instant reaction with sulphides that are present or can form a reservoir within the sewage to react with sulphides that are generated further down the network.

12.20 – 12.30

### How Air Pollution Products & Systems are working with water authorities currently with Bio-treat 2000

Robert Watkins, Air Pollution Products & Systems

- Variation tolerant
- Deals with both sulphides and fats
- Reduction in odours
- Highly cost effective
- Prevents sewer corrosion

12.30 – 13.30

### Lunch

## PROTECTING THE ASSETS FROM ABUSE

13.30 – 14.00

### Flushable Products

Andy Drinkwater, WRc

14.00 – 14.30

### Responsible Food Waste Disposal

Jeremy Howell-Thomas, Worcestershire County Council

- Waste Prevention in Herefordshire & Worcestershire - an overview
- Landfill and domestic food waste in the UK
- Food waste disposal - best practical environmental options

14.30 – 15.00

### Food Waste Disposers (FWD) - Impact on the wastewater system

Dr Philip Thomas, Thames Water R&D

- A review of worldwide research on FWDs
- The potential impact on both the sewerage and wastewater treatment systems
- Results of a practical study examining the increased load due to food waste

15.00 – 15.30

### Afternoon Break

15.30 – 16.00

### Alternative Options for Managing Domestic Kitchen Food Waste: Costs and GHG Potentials

Dr Tim Evans, TIM EVANS ENVIRONMENT

- Characteristics of Kitchen food waste
- Centralised digestion or FWD - balancing the issues
- Environmental footprints and cost reimbursement

16.00 – 16.30

### Pre-treatment of Industrial Waste to reduce impact on Sewer capacity and WWT plant

Dr John Duffy, Pulsonic Technologies Ltd

- How industries with heavy impacts on the networks can reduce costs;
- reduce impact on the sewer capacity and
- integrity and maintain compliance with their regulatory consents

16.30 – 16.45

### Discussion session & close

# Booking Form

## Delegate Details

I would like to register for the 'The Sewer Network: Preventing, Remedying & Handling Abuse' conference on 1st July 2008.

Title \_\_\_\_\_

Name \_\_\_\_\_

Organisation \_\_\_\_\_

Address for Correspondence \_\_\_\_\_

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\_\_\_\_\_

Postcode \_\_\_\_\_

Tel \_\_\_\_\_

Fax \_\_\_\_\_

Email \_\_\_\_\_

**Fees** £290 (+VAT) = £340.75

## Method of Payment

**CHEQUE:** I enclose a cheque for

£ \_\_\_\_\_

Payable to AE Technology Transfer (A VAT Receipt will be sent automatically).

**INVOICE:** Please invoice for the sum of

£ \_\_\_\_\_

Purchase Order \_\_\_\_\_

Contact Name \_\_\_\_\_

Contact Number \_\_\_\_\_

Invoice Address \_\_\_\_\_

\_\_\_\_\_

**CREDIT/DEBIT CARD:**

Card Type \_\_\_\_\_

Card Number \_\_\_\_\_

Name on card \_\_\_\_\_

Expiry date \_\_\_\_\_

Issue number (for Switch) \_\_\_\_\_

Security number (last 3 digits on reverse of card) \_\_\_\_\_

Registered address (if different to delegate address above)

\_\_\_\_\_

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## Terms and Conditions

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:

**AE Technology Transfer, Unit 8, Appleton Court, Calder Park, Wakefield WF2 7AR**

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Email: clarehunter@daquaenviro.co.uk