



IIR CONFERENCES & TRAINING

A DIVISION OF IIR HOLDINGS LTD.

Dear Wastewater Specialist,

With populations throughout the Middle East growing rapidly, cities expanding and industry developing at an unprecedented pace, the management of urban and industrial sewage and waste water has become a critical issue. Improving the efficiency of all sewage and effluent management schemes, at the same time as considering environmental issues, is a subject of prime importance to the region's entire population.

The effective treatment, recycling, disposal and re-use of sewage and effluents is a specific area within the management field which offers enormous potential for improved resource management. Recent advances in technology, improvements in treatment systems together with strict legislative policies introduced at both municipal and industrial level all play a key role in increasing the amount of usable water available to both industry and the public.

IIR's intensive three-day programme on Sewage And Effluent Treatment is designed to focus on the latest developments in this important field. The seminar will provide delegates with in-depth knowledge on all aspects of Sewage and Effluent Treatment including the design of management programmes and treatment facilities, and the latest developments and strategies to minimise, treat, recycle and finally dispose of municipal and industrial sewage and effluent.

Seán Moran, your highly experienced seminar leader, has many years' experience of plant and process design for water and effluent treatment plants. As a consequence, he has a deep understanding of the challenges facing sewage and water managers in this specialised sector.

You will not want to miss this opportunity to meet with other water and sewage management specialists to discuss recent developments and examine the practical implications of leading-edge technology.

I look forward to welcoming to Sewage And Effluent Treatment in November.

Yours faithfully,

Joanna Savagar

Joanna Savagar
Event Manager

FIVE EASY WAYS TO REGISTER

- Dubai 971-4-3352437 Dubai register@iirgulf.com
- Dubai 971-4-3352438 Dubai www.iirgulf.com/sewage
- Dubai IIR Holdings Ltd.
PO Box 21743, Dubai, United Arab Emirates
- Bahrain GCS/IIR Holdings Ltd.
P O Box 13977, Muharraq, State Of Bahrain

WHERE?

Crowne Plaza Hotel, Dubai
Tel: 971-4-3311111 Fax: 971-4-3315555
A discounted room rate is available for IIR delegates.
Please contact the Hotel directly to make your reservation.

WHEN?

2 - 4 November 2002

HOW MUCH?

US\$ 1,995 / Dhs 7,326 - 3 Day Seminar

Early Bird Discount
Book before 5 October 2002 and save US\$ 100

Fees include documentation, luncheon, refreshments and a certificate of attendance.

PAYMENTS

Please tick if you would like to pay by Visa, Mastercard or American Express. A confirmation letter and invoice will be sent upon receipt of your registration. Please note that full payment must be received prior to the event. Only those delegates whose fees have been paid in full will be admitted to the event. You can pay by company cheques or bankers draft in Dirhams or US\$. Please note that all US\$ cheques and draft should be drawn on a New York bank and an extra amount of US\$ 6 per payment should be added to cover bank clearing charges. **All payments should be in favour of IIR Holdings Ltd.**

CANCELLATION

If you are unable to attend, a substitute delegate will be very welcome in your place. If this is not suitable, a \$200 service charge will be payable. Registrations cancelled less than 7 days before the event must be paid in full.

AVOID VISA DELAYS – BOOK NOW

Delegates requiring visas should contact the hotel they wish to stay at directly, as soon as possible. Visas for non-GCC nationals may take several weeks to process.

Number of employees at your site:

0 - 49 50 - 249 250 - 499 500 - 999 1000+

Please indicate the nature of your business: Public Sector Financial

Retailing Distribution Services Technology Construction

Oil & Gas/Chemical Utilities Manufacturing

Other (Please specify)

971-4-3352437 register@iirgulf.com

971-4-3352438 www.iirgulf.com/sewage

Sewage And Effluent Treatment

REGISTRATION FORM

Please do not remove this label

I SB RM DB DC1093

If your address above appears incorrectly, please fill in the correct details below

YES. Please register the following delegate/s for

Sewage And Effluent Treatment

(for additional delegates please photocopy this form)

1 Name (Mr/Ms) _____

Position _____

Email _____

Department _____

2 Name (Mr/Ms) _____

Position _____

Email _____

Department _____

Company _____

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Sewage And Effluent Treatment

2 - 4 November 2002 • Crowne Plaza Hotel, Dubai

Enhance Your Knowledge On:

- Solutions for the cost-effective management, treatment and re-use of industrial and urban waste
- The most effective chemical and biological treatment processes
- Designing treatment plants for optimum efficiency
- The latest treatment technologies
- How to overcome industrial effluent treatment problems
- Innovative and new physical, aerobic biological, and anaerobic biological treatments

Who Should Attend?

- Water and Wastewater Managers • Water Resource Managers
- Operations Managers • Technical Managers • Health, Safety & Environment Managers
- Municipal & Regional Planners • Waste Managers • Works Managers
- Plant Environment Engineers / Managers • Waste Management Officers / Managers
- Waste Disposal Supervisors / Managers • Environmental Managers
- Project Engineers / Managers

Course Timings:

Registration will be at 08.00 on Day One. Each day will commence at 08.30 and conclude at 14.30 after which lunch will be served. There will be two 15-minute breaks for refreshments at appropriate intervals.

DAY 1

Saturday, 2 November 2002

Overview: Wastewater Engineering

- Wastewater treatment
- Sludge treatment
- Water disposal and reuse

Wastewater Characteristics

- Wastewater flows
- Wastewater composition

Wastewater Treatment Considerations

- Objectives
- Classification of methods
- Applicability and selection of methods

Overview: Wastewater Treatment Plant Design

- Flowrate and mass loading
- Selection of design flowrates
- Selection of design mass loadings
- Process selection
- Conceptual process design

Physical Processes

- Flow measurement
- Screening
- Flow equalisation
- Mixing
- Sedimentation
- Accelerated gravity separation
- Flotation

- Filtration
- Gas transfer
- Stripping

Chemical Processes

- Precipitation
- Absorption
- Disinfecting
- Dechlorination
- Other chemical processes

Biological Processes

- Overview: biological processes
- Microbial metabolism
- Important micro-organisms
- Bacterial growth
- Biological treatment processes
- Aerobic attached growth processes
- Aerobic suspended growth processes
- Anaerobic attached growth processes
- Anaerobic suspended growth processes
- Biological nutrient removal
- Pond treatment

Review Of Day One

DAY 2

Sunday, 3 November 2002

Review - Preview

Conventional Treatment Plant Design: Overview

Primary Treatment Plant Design

- Racks and screens
- Comminution
- Grit removal
- Flow equalisation
- Other preliminary treatments
- Primary sedimentation
- Other solids removal options
- Chemical precipitation
- Disinfecting
- Post aeration
- VOC and odour control

Secondary Treatment Plant Design

- Activated sludge: the process
- Activated sludge physical facility design and selection
- Activated sludge process design
- Aerated lagoons
- Trickling filters
- RBCs
- Combined aerobic treatment processes
- Stabilisation ponds

Tertiary Treatment Plant Design

- The need for tertiary treatment
- Treatment technologies
- Screens and filters for residual suspended solids removal

Overview: Nutrient Removal

- Biological nitrogen removal
- Chemical - physical nitrogen removal
- Biological phosphorus removal
- Chemical - physical phosphorus removal
- Biological combined nitrogen and phosphorus removal
- Removal of toxic and refractory compounds
- Removal of dissolved inorganics

Review - Preview

DAY 3

Monday, 4 November 2002

Sludge Treatment Plant Design

- Sludge yield
- Sludge characteristics
- Sludge and scum pumping
- Preliminary operations
- Thickening
- Stabilisation
- Anaerobic sludge digestion
- Aerobic sludge digestion
- Composting
- Conditioning
- Disinfection
- Dewatering
- Thermal drying
- Uses of sludge

Overview: Industrial Effluent Treatment

- Oil and water separators
- Granular activated carbon treatment
- Neutralisation
- Reduction
- Physical and chemical treatments

Problems Of Industrial Effluent Treatment

- Batching
- Toxic shocks
- Nutrient balance
- Sludge consistency
- Changes in main process

Overview: Newer Physical Treatment Processes

- Ultrasonic sludge conditioning

Overview: Newer Aerobic Biological Treatments

- Natural treatment
- Bio-augmentation
- Deep shaft process
- Pure or enhanced oxygen processes
- Biological aerated flooded filters
- Sequencing batch reactors
- Membrane bio-reactors

Overview: Newer Anaerobic Biological Treatments

- Upflow anaerobic sludge blanket process
- Anaerobic filter process
- Expanded bed reactor
- Two and three stage digestion

IN-HOUSE TRAINING

IIR is happy to organise a range of training courses for your company. If you would like to take advantage of this service, please contact **David Stuckey** or **Gael MacLeod-MacLean** on 971-4-3365161.

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MEET YOUR WORKSHOP LEADER

Seán Moran BSc., D.U.C., M.Sc., C.Eng., M.I.Chem.E.

Seán is Principal Consultant of Expertise Limited, a UK based Water and Environmental Engineering Consultancy. He is a member of the UK Institution of Chemical Engineers' Water Subject Group Committee. He has been working as a Process Designer and Commissioning Engineer for water and effluent treatment plants for over twelve years, the last seven of these in private practice. He started his career with the international process engineering contractors Purac and VA Tech WABAG, and has worked in all parts of the UK water industry since setting up his own consultancy.

Excellent Reviews From IIR's Previous Environmental Management Programmes

"I have really gained a lot of information and benefited from the experience of the speakers and the delegates."

Saeed Afarah, SABIC SERVICES

"The event was informative and provided an insight into the waste management strategies and experiences in the Gulf region."

Cedric D'Souza, DUBAL

"The subjects and course material were very informative and interesting for better planning. Excellent!"

Ghazanfar Ali Iqbal, SCECO-East

Due to unforeseen circumstances, the programme may change and IIR reserves the right to alter the Venue and/or Speakers.