

Groundwater 2019

27 March, London

New Techniques and Practical Solutions for the Improved Characterisation, Risk Assessment and Remediation of Groundwater

About this event

Returning for its 8th year, our annual **Groundwater** conference, which will take place on **27th March in London**, will once again offer practical solutions and technical updates, providing you with the latest knowledge and best practice to tackle your most pressing groundwater challenges.

Key topics to be discussed include:

- Best practice techniques for better characterizing the sub-surface and understanding the fate and transport of contaminants in groundwater
- How to develop a groundwater watch list for substances of emerging concern
- Advanced DNAPL source zone characterisation for targeted remediation; clarifying natural source zone depletion (NSZD) for better assessing groundwater contamination risk
- Most appropriate laboratory analysis for different contaminants to achieve optimum cost efficiency
- Understanding NAPL for more accurate risk Assessment
- In-Situ Remediation of Contaminated Groundwater using Bio-Remediation

Why attend?

Expert panel

This event brings together a mix of regulators, practitioners and consultants to review and discuss key policies and practical solutions to a number of Groundwater challenges.

Case studies

Learn from hands-on experience in a series of case studies which will provide technical guidance and practical frameworks, and come away with best practices that you can apply immediately within your organisation.

Time efficiency and focus

Remove yourself from day to day distractions and benefit from a series of focused presentations, designed to tackle key issues and impart practical advice and guidance.

Q&A panel discussions

In addition to expert-led presentations, there will also be a number of Q&A discussion sessions throughout the day, giving you the opportunity to address your specific questions and challenges and share your opinions with others.

Networking

Meet and mingle with senior professionals in your sector - an invaluable networking and knowledge-sharing opportunity.

9.00 Registration and Refreshments

9.30 Opening Remarks from the Chair

Duncan Cartwright, Associate Director, Atkins

9.40 Developing a Groundwater Watch List for Substances of Emerging Concern

There is growing concern about the occurrence of a diverse array of anthropogenic organic contaminants in the aquatic environment. This concern extends to groundwater which is a critical drinking water resource. Current monitoring and regulation only covers a small fraction of anthropogenic substances that could pollute groundwater. Monitoring for unregulated substances is currently very limited or not carried out at all and as a result, the evidence base with which to inform policy development in this area is currently inadequate. Due to the high cost of monitoring, a coordinated European-wide approach is needed to identify priority substances, or groups of substances, that have the potential to pollute groundwater.

This talk describes recent progress made by the European Working Group on Groundwater to establish the first voluntary groundwater watch list (GWWL) for substances of emerging concern. The process for developing the GWWL is one that has brought together researchers, regulators and industry and is briefly described. A summary of the key principles behind the GWWL methodology is presented as well as results from pilot studies using per- and polyfluoroalkyl substances and pharmaceuticals.

Dan Lapworth, Principal Hydrogeochemist, British Geological Survey

CASE STUDY

10.10 Best Practice Techniques for Better Characterizing the Sub-Surface and Understanding the Fate and Transport of Contaminants in Groundwater

- New techniques for characterising groundwater quality and pollutant fate in the sub-surface:
 - better understanding sub-surface contaminant distribution
 - assessing the impact of heterogeneity on groundwater flow
- Advances in digitalisation of the collection, presentation and use of groundwater data – enabling real-time data in a usable format
- Developing robust Conceptual Site Models which support and justify risk assessment decisions

Ben Le Grice, Senior Environmental Consultant, Arcadis

10.40 Morning Refreshments & Networking

CASE STUDY

11.10 Advanced DNAPL Source Zone Characterisation for Targeted Remediation: Is the Gain Worth the Pain?

Examining what techniques are being used in practice for contaminant source and plume zone characterisation to inform remedial strategies. This presentation, illustrated with case studies, will draw on 20 years of research and practice to reveal recent advances in site characterization methods and present an evaluation of which methods provide the best return on investment.

Dr Gary Wealthall, Senior Principal and Adjunct Professor (Toronto), Geosyntec Consultants Ltd

11.35 Clarifying Natural Source Zone Depletion (NSZD) for Better Assessing Groundwater Contamination Risk

This presentation will provide insight into effectively calculating the NSZD rate, understanding the natural process and the effect it has on groundwater plumes, as well as applying it in ground water models.

**Dr Michael Rivett, Director, GroundH2O plus Ltd & Dept of Civil & Environmental Engineering,
University of Strathclyde. Presentation co-authored by Rob Sweeney, Project Director, CL:AIRE**

12.00 Understanding NAPL for More Accurate Risk Assessment

- Understanding how NAPL behaves as it moves from source to aquifer and the impact of source zone depletion
- Best practice in modelling NAPL transport and plume migration over time

Ben Fretwell, Associate Director, Wood Environment & Infrastructure

12.25 Q&A

12.40 Lunch

13.30 Selecting the Most Appropriate Laboratory Analysis for Different Contaminants to Achieve Optimum Cost-Efficiency

This presentation will give an insight into current laboratory analysis capabilities and their suitability for different contaminants, particularly those with low EQS targets. By better understanding which analysis techniques achieve the best characterisation, you can select the most appropriate for your site and achieve optimum results within budgetary constraints.

Hazel Davidson, Technical Marketing Manager, Derwentside Environmental Testing Services (DETS)

CASE STUDY

13.55 Case Study: Better Understanding & Conceptualising the Sub-Surface to Implement Effective & Justifiable Groundwater Remedial Solutions for NAPL

- Determining what information you need, and what to do with it, to get suitable outputs for effective decision-making
- Developing robust Conceptual Site Models which support and justify risk assessment decisions:
 - emphasising a lines of evidence approach to justify remediation decisions

Dr Anna Hitchmough, Associate Technical Director, RSK

CASE STUDY

14.20 Case Study: Exploring the Benefits of Flux Measurement Technology to Assess the Speed and Direction of Contaminant Dispersion in Groundwater

- Introducing the principle of flux measurements and their applicability to contaminated land and groundwater projects
- Outlining the Regulatory view on this new groundwater monitoring technique
- Project case studies

Tim Op't Eyndt, Managing Director, iFLUX

14.45 Q&A

15.00 Afternoon Refreshments

15.25 Assessing the Implications for Groundwater of Sources & Sinks of Nitrogen & Phosphorus Associated with Public Water Supply

- Examining the extent to which mains water leakage is a significant source of phosphorus and nitrogen to groundwater and how this will change in the future
- Can we trace nitrogen and phosphorus associated with mains water leakage?
- Exploring if abstraction for public water supply is a significant nitrogen sink

Matthew Ascott, Hydrogeologist, British Geological Survey

15.50 In-Situ Remediation of Contaminated Groundwater using Bio-Remediation

- Determining the extent to which in-situ bio-degradation of contaminated groundwater can be used effectively, and the costs, benefits and practicalities of it as a remedial solution
- Examining how it can be demonstrated to have a consistent approach appropriate for regulatory sign-off

James Cartwright, Technical Director, Geostream UK

16.15 Q&A

16.25 Closing remarks from the Chair and close of conference