

# 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 **27<sup>th</sup> 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
- How to best assess Groundwater Contamination Risk
- Most Appropriate Laboratory Analysis for Different Contaminants to Achieve Optimum Cost-Efficiency
- How to manage NAPL Transmissivity for More Accurate Risk Assessment
- Understanding the Interaction of Groundwater with River, Coastal and Surface Water Systems and the Implications for Groundwater Quality

### **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

#### **9.40 Regulatory Perspective on Groundwater Issues**

- Update on recent changes and updates to groundwater guidance and outlining any proposed new guidance
- Outlining how land management approaches are impacting on groundwater quality and resource protection
- Detailing the Regulator's view on:
  - innovative monitoring and data collection techniques
  - groundwater risk assessment and remediation approaches
  - remediation closure criteria
- To what extent can differences in regulatory approach and detail across different regions be minimised and managed?

#### **10.05 Developing a Groundwater Watch List for Substances of Emerging Concern**

10.30 Q&A

10.40 Morning Refreshments & Networking

### **Groundwater Risk Assessment & Site Characterisation**

#### **11.05 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**

#### **11.30 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 groundwater models.*

**Dr Michael Rivett, Director, GroundH2O plus Ltd & Dept of Civil & Environmental Engineering, University of Strathclyde**

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

- Determining what information you need, and what to do with it, to get suitable outputs for effective decision-making
- 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

## **12.20 Understanding and Managing NAPL Transmissivity 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

12.40 Q&A

13.00 Lunch

## **13.45 Examining the Use of Fluorescence to Monitor Microbial Contamination Risk in Groundwater**

### **14.10 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.*

### **14.35 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**

15.00 Q&A

15.15 Afternoon Refreshments

### **15.40 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**

### **16.05 Understanding the Interaction of Groundwater with River, Coastal and Surface Water Systems and the Implications for Groundwater Quality**

- Exploring different groundwater interfaces and the impact of their interactions on the fate and transport of contaminants:
  - urban groundwater - surface water interactions
  - soil and sediment impacts
  - the impact of biogeochemical processes
- Exploring the aims, challenges and potential of an integrated modelling approach for better environmental risk assessment
- Practicalities of integrating groundwater flow and transport with other environmental models, for example water resource planning to achieve better decision-making

### **16.30 In-Situ Remediation of Contaminated Groundwater using Bio-Remediation**

- Determining when bio-remediation 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

16.30 Q&A

16.45 Closing remarks from the Chair and close of conference