

Tuesday 1 May 2012
15 Hatfields, London, SE1

Regulatory updates and new technologies for the
cost-effective assessment and remediation of

GROUND WATER

- **Changes to statutory guidance for Part 2A**
- **Water sampling techniques**
- **New contaminants**
- **Data sampling and modelling**
- **New remediation technologies**
- **European Directive update**

Supported by



09.00 **Registration, tea and coffee**

09.30 **Opening remarks from the Chairman**

Dr Jeremy Birnstingl, Managing Director, REGENESIS

09.45 **Examining the implications of changes to the planning regime for groundwater remediation**

Hugh Mallett, Associate Director, BURO HAPPOLD

- Clarifying the definition of “sustainable development” and the implications of this for groundwater remediation
- How can companies ensure “betterment” has been achieved if water quality guidance is withdrawn?
- Assessing when and how groundwater contamination will be considered under the new planning regime
- Evaluating how site re-development will ensure the quality and availability of water resources going forward

10.10 **Examining the impact of the changes to the statutory guidance for Part 2A on existing legal liabilities relating to groundwater**

Paula Whittell, Partner, BERRYMANS LACE MAWER

- Outlining how controlled waters will be regulated under new Part2A statutory guidance and the position of groundwater within this
- Examining how sites determined under Part 2A will be managed going forward:
 - practical implications of the changes for local authorities, their contractors and consultants
 - the role of Local Authorities and the Agencies
- Examining the key changes to the guidance regarding the possibility of significant harm in controlled water
- POSH, SPOSH, and SPOSHpoCOW
- Examining how different groundwater regulations will interact with one another and work together in practice

10.35 **Questions & Answers**

11.05 **Effective collection and use of sampling data to improve groundwater modelling accuracy**

James Baldock, Principal Consultant, Contaminated Site Management,
ENVIRONMENTAL RESOURCES MANAGEMENT

- Use of High Resolution Sampling Techniques to acquire groundwater modelling input data
- Ensuring sampling data is of sufficient quality, “fit for purpose” and meets regulatory requirements
- Improving certainty of key input parameters when developing groundwater models
- Evaluation of hydraulic conductivity and flow zones
- Assessing the occurrence and rate of natural attenuation
- Case studies illustrating use of the above approach to provide cost-effective and sustainable remediation solutions

- 11.30** **The application of ultra-resolution chemical fingerprinting of non-aqueous phase liquids (NAPLs) for improved identification of groundwater contamination on a former gasworks site**
Dr Russell Thomas, Technical Director, Environment, PARSONS BRINCKERHOFF
- Providing an understanding of how gas manufacturing practices have resulted in chemically different NAPLs on former gasworks
 - Describing how ultra-resolution chemical fingerprinting has been applied to the analysis of NAPLs to identify different NAPLS
 - Explaining how this can be used to predict the properties and likely fate of the NAPLS
- 11.55** **Questions & Answers**
- 12.05** **Regulatory update: Clarifying the key changes to surface and groundwater legislation and detailing the practical implications of new regulations**
Tim Besien, Senior Adviser, Groundwater, ENVIRONMENT AGENCY
Alison Hukin, Technical Specialist, Groundwater & Contaminated Land, ENVIRONMENT AGENCY
- Environment Agency Perspective: An update on the groundwater aspects of the Water Framework Directive**
- Progress with implementing the Water Framework Directive and the Groundwater Daughter Directives
 - Prevent and limit requirements
 - UKTAG Environmental standards
 - Article 7 and Safeguard Zones
 - Groundwater Vulnerability maps and aquifer designations
 - Groundwater Protection: Principles and Practice (GP3) update
- Detailing the Environment Agency's work on valuing groundwater as a resource in order to assess the cost-benefits of protection and remediation**
- Designing a reproducible and practical framework to obtain the value of groundwater where:
 - there are public water supplies
 - the principal value of the groundwater is to the environment
 - Effectively applying resource economics principles to groundwater
 - Providing a practical methodology for valuing the benefits that groundwater provides
 - Groundwater valuation case studies
- 12.45** **Questions & Answers**
- 12.55** **Lunch and exhibition viewing**
- 14.15** **Examining newly emerging contaminants and assessing their potential risk to groundwater environments**
Marianne Stuart, Team Leader, Groundwater Protection, BRITISH GEOLOGICAL SURVEY
- Identifying the different emerging groundwater contaminants that are being detected more frequently, and where they are being found
 - Outlining the sources and pathways for these contaminants to enter the aqueous environment and assessing the risk posed by each of them

- Detailing which of these contaminants are regulated, or likely to be so
- Evaluating methods available for assessing and treating these newly emerging contaminants

14.40 Case study: Integrated remediation for diesel contamination at an operational site – challenges, solutions and opportunities

Professor Phil Morgan, Technical Director, THE SIRIUS GROUP

Dave Brooks, Principal Engineer, THE SIRIUS GROUP

- The logistics and practicalities of investigation, risk assessment and remediation at a busy, operational site
- Source-term NAPL management and remediation
- Monitored natural attenuation (MNA) for plume risk management in a high sensitivity setting
- The benefits of constructive relationships with third parties

15.05 Practical, sustainable and cost-effective remediation technologies for groundwater

Cecilia MacLeod, Technical Director, ARCADIS UK

- Product development means that there are ever increasing numbers of technologies available for consultants or contractors to use as groundwater treatment solutions.
- How do these technologies look when assessed in the SURF UK Framework?
- How do these technologies stack up if assessed from a Water Stewardship perspective?
- What are the impacts on remediation costs?

15.30 Questions & Answers

15.40 Coffee and exhibition viewing

16.00 Water company perspective: Successfully influencing stakeholders to reduce contaminants at source and improve water quality

Paul Stanfield, Hydrogeology & Catchment Manager, WESSEX WATER

Wessex Water's award winning catchment management initiative began with the objective of stabilising and then reducing the levels of contaminant at water sources so no additional treatment is required. Working together with local farmers and landowners in the catchment areas of the boreholes and reservoirs, means we can influence and implement changes in agricultural land use and practice to reduce the levels of nitrate and pesticide that enter the aqueous environment and so safeguard the quality of ground and surface waters.

Since catchment management began in 2005 there have been no nitrate exceedances in treated water at any of the 'at risk' catchments. We no longer require additional treatment for pesticides and metaldehyde removal at one groundwater site and two surface reservoirs.

16.25 Extended session: New remediation technologies being used to treat commonly occurring contaminants

Enhanced physical recovery of petroleum hydrocarbons from groundwater – development of a new reagent for increasing pump-and-treat efficiency

Gareth Leonard, District Manager – UK and Scandinavia, REGENESIS

- What unknowns govern the efficiency of extractive (pump-and-treat) groundwater

remediation technologies?

- How can prolonged treatment periods, 'flat-lining' above treatment targets and rebound be eliminated?
- Can rapid mass recoveries be achieved without fixed installations?
- This talk outlines the development of a new reagent – PetroCleanze™ – designed to target these considerations

16.40 Case study of new remediation technologies being used to treat commonly-occurring and emerging contaminants

Dr. Ian Ross, Remediation Business Development Manager, FMC ADVENTUS

This presentation will detail the use of a number of different in-situ remediation technologies for various common and newly emerging contaminants in groundwater, using case studies from the UK and Europe

17.00 Case study: In-situ chemical reduction of chlorinated solvents in drift and chalk aquifers using biotic and abiotic dechlorination

David Granger, Associate Director, Hydrogeology, URS INFRASTRUCTURE & ENVIRONMENT UK LTD

Chris Tate, Team Leader - Groundwater and Contaminated Land, Anglian Region Area, ENVIRONMENT AGENCY

This presentation will detail work being done on behalf of the Environment Agency down-gradient of the former Eastern Counties Leather site at Sawston in Cambridgeshire. The work relates to in-situ chemical reduction of chlorinated solvents in both Drift and Chalk aquifers, using varied recipes of iron and carbon. Treatment was initiated using direct injection of EHC® in the Drift aquifer, and straddle packer injection of EHC-L® within the Chalk. This is the first application of EHC-L in the UK. The installation of the multi-port monitoring infrastructure and injection of the reagents will be presented, together with the results from the first three months of monitoring.

17.15 Panel Q&A

17.30 Closing remarks from the chairman and close of conference