

SESSION 4

Monitored Natural Attenuation (MNA)

TUESDAY 17 SEPTEMBER
09:00 – 11:00 CEST (Central European Summer Time)

ONLINE

Opening

- 09:00** Introduction from the Chairs, *Nicola Harries (CL:AIRE) & Marco Falconi (Remtech Europe)*
- 09:10** Fundamentals of the MNA conceptual site model, *James Rayner (Geosyntec, CL:AIRE)*
- 09:30** The Power of CSIA for Remediation Monitoring and Source Forensics, *Kevin Kuntze (Isodetect)*
- 10:00** The Power of Molecular Biological Tools in MNA, *Phil Dennis (SiREM)*
- 10:30** MNA in the lifecycle of a remediation project, *James Rayner (Geosyntec, CL:AIRE)*
- 10:50** Closing questions & discussion, *Nicola Harries (CL:AIRE)*
- 11:00** *End of the Training*

Register yourself in the Google form <https://forms.gle/txxdkSxvREu5FMfE6>

MNA can be a sustainable risk management strategy for a wide range of groundwater contaminants, where environmental data are collected and assessed that demonstrate natural attenuation will protect receptors from pollution or harm. Natural attenuation refers to naturally occurring processes to reduce contaminant concentrations, flux or toxicity in groundwater. MNA has a long track record of applications globally, either as the sole remediation strategy, or the final stage following transition from active remediation.

Significant advances have been made in understanding contaminant behaviour in the subsurface, alongside ongoing developments in site characterisation, monitoring and predictive modelling for MNA, that are captured in recently published guidance by CL:AIRE (download for free here <https://claire.co.uk/component/phocadownload/category/22-important-industry-documents?download=993:mna-guidance>).

This training will introduce the new guidance and explain the role of assessing and implementing MNA in closing corrective actions. Particular focus will be given to applications of molecular biological tools (MBTs) and compound specific isotope analysis (CSIA) that enhance contaminant and process-specific understanding, required to address complexities and uncertainties that were previously challenging to deal with.



James Rayner is a Principal at Geosyntec Consultants who specialises in developing advanced conceptual site models to support management of land contamination in challenging environments. He has expertise with pioneering data analysis and modelling techniques to assess contaminant fate and transport, and to appraise the feasibility and performance of monitored natural attenuation (MNA), natural source zone depletion (NSZD) and remedial alternatives, and published technical guidance on these topics with CL:AIRE.



Phil Dennis is a Senior Principal Scientist at SiREM in Guelph, Canada where he has worked for over 22 years. Phil holds a Master of Applied Science in Civil Engineering from the University of Toronto, and an Honours Bachelor of Science in Molecular Biology and Genetics from the University of Guelph. Phil currently directs molecular genetic testing services and is innovation lead for SiREM's research and development program.



Kevin Kuntze is CEO of Isodetect GmbH, Germany. He received his Ph.D. in Biochemistry from the University of Leipzig (Germany) in the research field of anaerobic biodegradation of groundwater contaminants. In the past 16 years Isodetect has developed many innovative tools in the area of molecular biology and compound-specific isotope analysis: Compound-specific Stable Isotope Analysis (CSIA), Stable Isotope Probing (SIP), in situ microcosms (BACTRAPs®), laboratory microcosm studies, metabolite analysis, molecular genetic techniques (qPCR) and GC-MS screening.