SESSION 5
Natural Source Zone Depletion (NSZD)

TUESDAY 17 SEPTEMBER
11:30 – 13:30 CEST (Central European Summer Time)

ONLINE

11:30 Introduction from the Chairs, *Nicola Harries (CL:AIRE) & Marco Falconi (Remtech Europe)*

11:40 Why NSZD is important in remediation site lifecycle, *James Rayner (Geosyntec, CL:AIRE)*

12:00 Monitoring expressions of NSZD, *James Rayner (Geosyntec, CL:AIRE)*

12:40 Developing the LNAPL CSM with NSZD, *James Rayner (Geosyntec, CL:AIRE)*

13:10 Panel discussion, stakeholders' questions and wrap up, *Nicola Harries (CL:AIRE)*

13:30 *End of the Training*

Register yourself in the Google form **https://forms.gle/hraeTcck4GSMS8DL7**

NSZD is a relatively new term that extends concepts underpinning monitored natural attenuation (MNA) to source zones to manage liabilities involving petroleum hydrocarbons in many environments. This method is rapidly evolving and is receiving increasing attention globally as stakeholders seek sustainable ways to remediate contaminated sites while meeting key performance indicators. NSZD refers to naturally occurring processes that act together to reduce light non-aqueous phase liquid (LNAPL) mass. Recent research and industry experience have demonstrated that mass depletion occurs at much higher rates than were previously understood, such that natural depletion of LNAPL is a viable alternative to, or can be a significant component of, active remediation. The April 2024 CL:AIRE Guidance on NSZD (https://claire.co.uk/component/phocadownload/category/22-important-industry-documents?download=992:nszd-guidance) compiles the latest information and practical considerations to create a holistic, up-to-date resource to help practitioners, regulators, and liability owners manage land impacted by LNAPLs.

This training will introduce the new guidance, which includes a 3-stage decision making framework to assess NSZD and advance corrective actions to closure, and describe the state of practice, including biogeochemical processes, monitoring technologies and the role of NSZD in the remediation project life cycle. Developing an LNAPL conceptual site model that considers NSZD is fundamental to achieving remediation objectives at petroleum hydrocarbon impacted sites. The training will explain aspects of LNAPL site characterisation to achieve data quality objectives, assessing risk regarding LNAPL and its gas-, vapour-, and dissolved-phase plumes and predicting mass depletion rates at increasing levels of complexity and confidence.

James Rayner is a Principal at Geosyntec Consultants who specialises in developing advanced conceptual site models to guide more sustainable management of environmental liabilities involving non-aqueous phase liquids (NAPL). He has expertise with multiphase contaminant fate and transport, appraising the occurrence of and monitoring natural source zone depletion (NSZD), and co-authored the recent CL:AIRE technical guidance on MNA and NSZD.