Quantifying Natural NAPL Attenuation: Practical Tools to Support Remedy Transition

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This presentation highlights practical tools for quantifying natural attenuation (including NSZD) of NAPL in the subsurface, supporting transitions to nature-based remedies. Drawing from recent guidance and applied research, including the Exit Strategy Toolkit (ANSR 2024), ASTM E3361 (2022), ASTM E3488 (2025) and publications by Lahvis and Hers (2024), Verginelli et al (2024, 2025), the talk emphasizes how quantitative tools can inform remedy decisions and demonstrate risk reduction.

Recent advances in digital tools now allow more efficient use of existing site data to estimate both bulk NAPL degradation and chemical-specific attenuation rates, improving alignment with risk-based site objectives. The presentation will discuss how these tools can help distinguish between general depletion processes and those targeting specific contaminants of concern (COCs), offering greater flexibility in remediation planning.

Updates to the soil gas gradient method, including refinements in interpretation and new supporting publications, will also be highlighted. These developments are increasing confidence in NSZD estimates and expanding the applicability of the method under a broader range of site conditions.

By linking NSZD metrics with conceptual site model refinement and long-term performance tracking, practitioners can better evaluate remedy transition thresholds and communicate defensible progress toward closure. This presentation is intended for consultants, site managers, and regulators seeking to apply data-driven, sustainable approaches to NAPL remediation.

Parisa Jourabchi

Parisa Jourabchi, PhD, PEng, is an environmental engineer at ARIS Environmental Ltd. specializing in collaborative, science-driven solutions for contaminated site remediation. Parisa led the development of the ASTM Standard Guide for Estimating Natural Attenuation Rates for NAPL in the Subsurface and applies innovative tools to tackle complex environmental challenges. At ARIS, Parisa supports professionals driving sustainable remediation forward.

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