LUST/Corrective Action Training Webinar Series

Hosted by:

New England Interstate Water Pollution Control Commission

Smart Characterization - The New Era of Site Investigations

July 19, 2016

1:00-3:30pm ET

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As a stakeholder, the best way to improve reliability and save money on environmental restoration projects is by changing the way you investigate sites. The conventional approach of investigating sites using monitoring wells and limited-interval soil sampling is a direct result of the early site restoration industry of the 1980s adopting experience from the groundwater and oil exploration and production industries. Reliance on large-scale averaging when interpreting the geology and contaminant distribution and developing restoration strategies was easily rationalized when the dominant restoration option was pump and treat. However, these simplified perspectives regarding flow and transport, though adequate for groundwater and oil production, have proven to be unreliable for efficient remedy performance. Now that we are applying combined remedies tailored for the source and different segments of groundwater plumes, we need smarter ways to characterize sites and take advantage of advances in restoration technologies.

The answer is *Smart* characterization – real-time, high resolution mapping of stratigraphy, permeability and contaminant concentrations, in groundwater and both unsaturated and saturated soils. Smart characterization enables you to develop a stratigraphic flux perspective and tailor restoration strategies based on transport potential and plume maturity. Smart characterization is a philosophy that recognizes the value of collecting the right data and making real-time decisions. The aim is developing quantitative digital conceptual site models (digital CSMs) that synthesize big data, providing an understanding of what clean-up levels can be achieved *before* restoration activities commence. When applied in an exit ramp decision framework, you are able to balance technical and economic practicalities with stakeholder objectives as the digital CSM evolves to ensure that there will be a *return on investigation*.

The webinar will consist of the following topics:

Smart Characterization and Return on Investigation: Newly developed tools and strategies for mapping source zones and dissolved-phase plumes. Using high-resolution, *Smart* characterization strategies to reduce total life-cycle costs of restoration by 3x-5x

Stratigraphic Flux: A new classification system that enables one to extend sequence stratigraphy to understand transport and restoration potential and improve restoration performance. The approach maps relative mass flux and plume maturity using high-resolution characterization data and classical geology interpretation.

A new approach to NAPL Management: leveraging *return-on-investigation* and stratigraphic flux approaches to develop digital NAPL CSMs, and determine when to manage and when to remediate NAPL. Topics will include advanced NAPL mapping methods, how to evaluate NAPL mobility and risk, and how inclusion of natural source zone depletion in the NAPL CSM is critical to practical restoration decisions.

The training will be led by Arcadis experts in ROI and Smart Characterization:
Nick Welty, director of Site Investigations for North America, and **Rick Ahlers**, global lead for NAPL Management.

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