

Advances and Lessons Learned in Site Characterization and Remediation at Multi-Contaminant Sites Including PFAS

Lisa L. Kammer, P.G. (lisa.kammer@westonsolutions.com) (Weston Solutions, Inc., Concord, NH, USA)
John Gerhard (john.gerhard@westonsolutions.com) (Weston Solutions, Inc., West Chester, PA, USA)

Background/Objectives. Per- and polyfluoroalkyl substances (PFAS) are an emergent class of compounds undergoing rapid evolution in regulation, investigation, quantification, and remediation. Multi-contaminant sites, at various stages of investigations and remediation, are now challenged by the potential presence of PFAS. These complex sites present opportunities for innovative approaches to investigation, design, and implementation of remediation treatment trains that meet applicable regulations and remediation objectives.

The objective of this presentation is a programmatic analysis with specific examples that demonstrates advances in site investigations and remediation and discusses lesson learned at multi-contaminant sites that include PFAS and other emerging contaminants.

Approach/Activities. A detailed evaluation was undertaken to consider methodologies developed and implemented for site investigation, remediation, and monitoring at a variety of project sites including PFAS in environmental media. The approaches illustrated are adapted for specific project needs. Following characterization, remedial approaches at various stages of implementation may be modified upon the confirmation of the presence of PFAS. Challenges exist related to an inconsistent regulatory environment, remote sites, varying and complex hydrogeologic conditions, various impacted environmental media, and consistency in analytical methodologies, procedures, and reporting. These approaches and lessons learned in characterization and remediation have been applied to allow for rapid adaption in project planning, communication, and execution consistent with the latest science and regulatory drivers, allowing for implementation of successful collaborative approaches to reduce overall costs.

Results/Lessons Learned. This presentation draws on site-specific examples of the application of lessons learned regarding iterative advances in site investigation, mitigation, and remediation with regard to multi-contaminant sites including PFAS as it relates to:

- Developing successful approaches to complex site assessment, remedial investigation, feasibility studies, and treatability studies with respect to multi-contaminant sites and varying regulatory conditions; and
- Challenges and lessons learned with regard to geochemistry, complex hydrogeologic regimes, and primary sources of PFAS (e.g., AFFF versus other applications) with a focus on short- and long-term risk to receptors, costs, and overarching project goals.