Change is Always Different: Calibrating the PFAS Regulatory Crystal Ball

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Background/Objectives. Don't trust anyone who starts a sentence with "PFAS are…" Generalizations about the thousands of compounds with the F-C-F moiety are insufficient and potentially misleading. With the overall goal of protecting human health and the environment, and the significant challenge of having many different types of PFAS and having them 'everywhere', the environmental remediation community is best poised for successfully managing PFAS by being flexible regarding outcomes while focused on risk reduction. PFAS investigations require unique considerations that are different from sites with conventional contaminants. We will address how these same investigations also benefit from the decades of learnings within the environmental community from other contaminants as they emerged.

Approach/Activities. The current fluidity of PFAS regulations and continuing revelations around PFAS chemistry (toxicity, fate and transport, etc.) can confound establishing project objectives and execution. Even with 'conventional contaminants' we have been affected by changes in regulations or guidance and differing state/regional approaches. For example, the EPA guidance for evaluating background using statistics changed considerably between 1992 and the present. Similarly, EPA's Risk Assessment Guidance for Superfund (RAGS) used today differs from the earliest versions. By focusing on the long-term objective of exposure reduction and leveraging a risk-based approach under CERCLA, one can design and implement PFAS studies to achieve a mitigation strategy once regulatory standards are promulgated—and even if they continue to change.

Based on the known evolution of PFAS regulations in the US and globally and a forward-looking view of what is in store within the EPA-mandated risk-based process, we can calibrate our PFAS crystal ball using the approaches seen around the world, from Australia to Europe to Canada and from the World Health Organization, how they differ and what they have in common to achieving the overall goal: exposure reduction.

Results/Lessons Learned. Since 2002, environmental scientists and engineers have developed and implemented methods to sample for, quantify, and understand the source of PFAS in the environment at sites where they were used. Valuable lessons learned from the earliest efforts informed the current state of best practices, initially focused on appropriate sample handling and evolving into increasingly sophisticated areas of determining flux, fate and transport of PFAS, soil moisture, and multi-media criteria (soil, sediment, waters).

For PFAS, initial assessment, conceptual site model development, data quality objectives, sampling/analysis, and reporting are all developed from our experience with 'conventional organic and inorganic contaminants' and modified with innovations based on PFAS' differences in chemistry, distribution, and fate and transport. The state of the PFAS practice designing and implementing PFAS investigations will be based on a review of more than 100 PFAS evaluations performed over the past 5 years and experience developing and refining investigative approaches that align with real and anticipated regulatory changes.