

## How Can the Cost Allocation Process Adapt to an Adaptive Remedy?

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**Background/Objectives.** The objective of this presentation is to offer technical and legal perspectives on how cost allocation processes should be designed to respond to adaptive remedies at sediment sites. Complex sediment cleanup sites pose unique challenges to cost allocation because conditions may actively change and the remedy design may be uncertain. Traditional cost allocation approaches, by contrast, are largely retrospective and assume a static site, fixed costs, and a final remedy. In many waterways, the contaminant distribution continuously evolves in response to processes or activities such as sediment deposition, erosion, or resuspension, historical or ongoing release pathways, natural recovery, biodegradation, navigational dredging, removal actions, and source control efforts. During a lengthy CERCLA process, these dynamics may alter the measured contaminant masses and distributions. As a result, these sites may employ “adaptive remedies” that contain flexible elements intended to improve effectiveness, promote cost-efficiency, and protect human health and the environment. Although adaptive remedies are necessary and beneficial to account for changed site characteristics, they can create impediments to successful cost allocation. During the course of an allocation, changes may occur to the remedial footprints, estimated costs, and contaminants driving the remediation. To overcome the uncertainties of adaptive remedies and achieve a successful allocation, the cost allocation process must incorporate similarly adaptive elements. This presentation will offer technical and legal perspectives on how the cost allocation process may be adapted to respond to dynamic site conditions and adaptive remedies, so that parties can negotiate a more equitable resolution and avoid future litigation.

**Approach/Activities.** In our technical and legal experience in representing PRPs at numerous sediment sites nationwide, we observe the challenges that both PRPs and allocators face in rendering decisions on moving-target remedies. Contribution-based approaches may have limited utility when contaminant mass and distribution in the system are continually changing. Cost-causation approaches may have limited utility when final footprints and remedy drivers are not available. Division of costs between contaminants may be complicated where the remedy-driving contaminants are trending over time. And complex remedy application may be distorted by the presence of significant source control and natural recovery in advance of implementation.

**Results/Lessons Learned.** We explore the pros and cons of different allocation methods and the unique challenges that arise from dynamic site conditions and adaptive remedies. We address possible approaches that may alleviate these challenges and propose alternatives for more adaptive allocation models. We further provide examples and notable legal decisions that illustrate both the challenges and alternatives that result in more adaptive cost allocations.