U.S. EPA Superfund Optimization: Progress and Outcomes

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Background/Objectives. Under EPA's 2012 National Strategy to Expand Superfund Optimization Practices from Site Assessment to Site Completion the Strategy, EPA expanded its remedy optimization program, tripling the average number of optimization and technical support events performed to about 21 per year from 2011 – 2015. By expanding the optimization program, EPA has realized benefits from optimization, such as increasing remedy effectiveness, improving technical performance, reducing costs, moving sites to completion, and lowering the environmental footprint of remediation activities, at a larger number of sites.

Approach/Activities. In FY 2015, EPA collected information from site project teams on the status of the optimization recommendations from the evaluations at 61 projects conducted between 2011 and 2015. The in-depth analysis of the data is yielding insightful information on how optimization practices are moving "upstream" to the early stages of projects, and which beneficial outcomes are typically incurred in each phase. Through a close analysis of the more than 640 individual recommendations made over the four years, we are also learning about which technical practices are helping us achieve the optimization goals.

Results/Lessons Learned. EPA found that close to two-thirds of the recommendations made at optimization evaluations have been implemented. Several tools and techniques were common to the optimization reviews and technical support events: (1) 68 percent of the sites had improvements to the conceptual site model, (2) 60 percent of the sites had streamlined or improved monitoring, (3) 39 percent of the sites had improved system engineering, and (4) 36 percent of the sites had a change in the remedial approach. The outcomes of implementing the recommendations resulted in improvements in five main areas (with # of recommendations); remedy effectiveness (273), cost reduction (152), technical improvement (158), site closure (107), and green (32 recommendations). Several project highlights help us better understand how these optimization events fit into the larger picture of managing complex sites.