

EPA Session 4: Remedy Optimization Through Remedial System Evaluation
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Environmental optimization best management practices (BMPs) encompass strategies, tools, and technologies that can be used at every phase of site cleanup from initial planning to site closure. These BMPs can reduce cost, schedule, and uncertainty by improving the effectiveness and efficiency of remedial strategies and monitoring activities that comprise environmental site cleanup.

The remedy implementation phase of an environmental cleanup project is typically more costly and longer-lasting than the preceding phases. Noting the excessive cost and number of sites 'stuck' in this phase, many regulatory programs and responsible government agencies, including U.S EPA, have instituted systematic processes for evaluating existing cleanup and monitoring systems with the goals of improving effectiveness and reducing and controlling overall site cleanup costs without increasing risks. The EPA has commissioned over 40 third-party Remedial System Evaluations (RSE) at Superfund, Resource Conservation and Recovery Act (RCRA), and Leaking Underground Storage Tank (UST) sites.

The RSE process involves a team of expert scientists and engineers, independent of the site, conducting a third-party evaluation of site operations. It is a broad evaluation that considers the goals of the remedy, conceptual site model (CSM), above-ground and subsurface performance, and site closure strategy. The evaluation includes reviewing existing site documents and data, visiting the site for up to 1.5 days, and compiling a report that includes recommendations to improve the system. Recommendations with cost and cost savings estimates are provided in the following four categories:

- Improvements in remedy effectiveness
- Reductions in operation and maintenance costs
- Technical improvements
- Gaining site closeout

The recommendations are intended to help the site team (the responsible party and the regulators) identify opportunities for improvements. In many cases, further analysis of a recommendation may be needed prior to implementation. As the recommendations represent the opinions of the RSE team, they do not constitute requirements for future action, but rather are provided for the consideration of all site stakeholders.

The fresh perspective of an RSE team often assists in improving the CSM, adjusting a remedy to better address existing site conditions (which may have changed during remedy operation), and either providing a defined strategy for site closure or identifying valuable next steps.

Recommendations are often detailed and provide the framework for work plans and site-specific steps to improve remedy effectiveness. Removing redundant treatment processes, streamlining a monitoring program, or downsizing motors might be suggested from reducing costs. The framework of an exit strategy may be provided to assist with reaching site closure.

This session will provide a primer on RSE, present case studies where RSE has been used to add value to cleanup efforts, provide an update on EPA's efforts to promote the use RSE, and provide specific examples of strategies, tools and technologies common to RSE efforts for various types of remedial programs that can be employed on projects.