An Accurate and Auditable Cost Estimating Tool for Environmental Remediation Financial Liability

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Background/Objectives. Federal Government Congressional mandates requiring identification of financial liability makes environmental liability (EL) cost estimating an important effort. Financial liability reporting, on corporate balance sheets (Sarbanes-Oxley [SOX] compliance), is a requirement for the private sector. The federal government also requires each Department and Agency of the Executive Branch to prepare and submit an annual financial statement (AFS) for the preceding fiscal year. Both Department of Defense (DoD) Financial Management Regulation (FMR) and Defense Environmental Restoration Program (DERP) guidance provides for the use of electronic cost estimating software in most EL estimating situations.
One of the primary estimating software programs used by the DoD is the Remedial Action Cost Engineering and Requirements (RACER) application. RACER is a cost estimating software that was developed in 1992 under the direction of the U.S. Air Force as a uniform, repeatable, auditable tool for estimating environmental investigation and cleanup costs for the annual budgeting and appropriations process. RACER is used currently to develop major parts of estimates for annual budgets, prepare individual project cost estimates, and to evaluate the reasonableness of cost estimates and proposals.

Approach/Activities. RACER is a budgetary level cost estimating tool that includes programmed cost models for environmental investigations and remediation projects. With over 110 models in 13 different categories, RACER offers a unique way to generate cost estimates for a wide range of complex remediation projects, including but not limited to; in situ bioremediation, pump and treat, free product removal, phytoremediation, oxidation processes and customized/user defined projects. Ongoing RACER enhancement efforts will be discussed and include: creation of a new ISCO model for estimating remediation costs via chemical oxidation or chemical reduction, AST Model for closure or removal of above ground storage tanks, and mining enhancements for large hard rock mining sites. A new cost model is being developed for decommissioning remediation systems once remediation goals have been achieved or when systems/components have reached the end of their useful service lives. RACER is also used to create EL estimating documentation trails to meet audit requirements, and for cost budgeting and forecasting of costs over time.

Results/Lessons Learned. RACER uses industry recognized risk analysis processes, is quick and easy-to-use, comprehensive, auditable and allows the estimator the ability to verify the level of scope definition and understand the cost drivers. It also allows for quality assurance and the ability to benchmark the estimate cost and schedule against similar already completed, projects thereby allowing for identification of any final areas of concern. While RACER continues to meet the estimating needs of its users, it is a legacy system that requires enhancements to remain current with industry standards and best practices. Detailed documentation of assumptions and reference information is required. Due to the lack of sufficient environmental remediation information, emerging contaminants remain difficult to estimate.