

# “ERDC Activities and Needs Related to the Reactive Transport Modeling of Inorganic Contaminants”

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## ABSTRACT

The U.S. Army Engineer Research and Development Center (ERDC) consists of seven laboratories, which collectively serve the U.S. Army Corps of Engineers, The Department of the Army, and other Federal, State, and international organizations. The ERDC conducts basic and applied environmental research and manages projects to address both military and civilian priorities. The vast majority of project and research activity involves organic compounds, *e.g.*, explosives and energetics in support of military needs, and PAHs, PCBs, solvents, and fuels in the civil works arena. However, heavy metals from both military activity (*e.g.*, munition-related Pb, DU) and civil projects (contaminated sediments and dredging) pose environmental concerns. Military environmental research is focused on military-unique issues such as installation restoration, training range maintenance, and minimizing impacts of military actions. A wide variety of common inorganic and organic contaminants are encountered on active, former, and realigning military installations.

ERDC supports the development and modification of models describing the reactive transport processes influencing the natural fate and engineered cleanup of contaminants. One of the centerpieces of the ERDC modeling program is a suite of graphical user interfaces (GUIs) – the Groundwater Modeling System (GMS), Surface-water Modeling System (SMS), and Watershed Modeling System (WMS) – each interfacing with several popular models, supplemented with system-specific tools that enhance model application. These GUIs are available commercially or at no cost to supporting Federal agencies and their contractors, *e.g.*, the GMS is supported by EPA, DOE, and NRC. Future model development supported by ERDC will tend to utilize xMS interfaces and models. The GMS will continue to evolve in directions supported by evolving project needs and research.