

## **FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)**

*EAD is developing and applying a variety of innovative technologies to assist in the cleanup of Cold War legacy wastes.*

### **■ PROBLEM/OPPORTUNITY**

Starting with the Manhattan Project, which was created to build the first generation of atomic weapons, and through World War II and the Cold War, large areas of contaminated material were built up at locations throughout the United States. One group of contaminated sites is now being cleaned up under FUSRAP, a program with an estimated budget of more than \$2 billion. EAD staff, through their experience supporting the U.S. Department of Energy (DOE) at these and other radiologically contaminated sites, have gained the technical background to build on successful cleanup approaches. EAD is now working with the U.S. Army Corps of Engineers and private contractors to produce cost-saving solutions to the contamination problem.

### **■ APPROACH**

In late 1997, FUSRAP management was transferred from DOE to the Corps of Engineers. EAD helped ensure a smooth program transition and continued progress in cleaning up FUSRAP sites by sharing critical, site-specific background information and making innovative technologies available for implementation. Technological areas that EAD has brought to Corps cleanup teams include human and ecological risk assessments, adaptive sampling and analysis methods, precision excavation techniques, and Internet-based data management tools.

An example of an EAD-developed methodology for assessing human and ecological health risk that

is currently being applied at FUSRAP locations is RESRAD. This family of computer codes is used to develop risk-based cleanup standards. Another is the Adaptive Sampling and Analysis Program (ASAP), a real-time data collection and decision support tool that can dramatically reduce site characterization costs.

EAD's precision excavation techniques use innovative field radiation measurements, global positioning system technology, and advanced analysis procedures to modify traditional excavation strategies. They are designed to greatly reduce the amount of clean material that might inadvertently get included with contaminated material to be disposed of off site. The smaller disposal volume result can result in significant cost savings.

EAD greatly enhances both its ASAP and its precision excavation applications by using innovative, Internet-based data management and decision support techniques. A password-protected Web site administered by EAD safeguards sensitive information while giving the Corps of Engineers, contractors, and regulators direct access to characterization, remedial design, and remedial action data. By providing them with the ability to easily visualize and monitor huge volumes of information, the technology results in better decision making and has proven instrumental in keeping remedial action projects on schedule.

### **■ RESULTS**

EAD has made significant contributions to

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FUSRAP under both DOE and Corps of Engineers direction. RESRAD has been used to quantify human health risks and to derive cleanup criteria at numerous locations. The ecological risk assessment currently being conducted for the St. Louis Airport site will result in clearly defined remedial actions for the complex Coldwater Creek watershed. ASAP and precision excavation techniques have been applied successfully at the Ashland 2 site near Buffalo, New York, with savings estimated to exceed \$10 million.

## ■ FUTURE

Initial successes have led to requests for additional specialized technical involvement by EAD at other FUSRAP sites. ASAP and precision excavation applications are being scheduled for the Ashland 1, Linde, St. Louis Airport, and Colonie sites. Improvements in radiation measurement, analysis, and Internet-based data management procedures will be integrated at these new projects. RESRAD continues to be refined for both DOE and FUSRAP risk assessment applica-

tions. Knowledge gained from these FUSRAP activities will be reapplied to other related Cold War Legacy projects.

## ■ COMMUNICATION OF RESULTS

Papers on EAD's contribution to FUSRAP in precision excavation and human and ecological risk assessment have been presented at recent conferences hosted by the National Defense Industrial Association, U.S. Army Corps of Engineers, and Society of American Military Engineers.



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