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**Precision Excavation Approaches to Remediating Soils
Contaminated with Radionuclides**

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The U.S. Army Corps of Engineers (USACE), Buffalo District, is responsible for remediating Formerly Utilized Sites Remedial Action Program (FUSRAP) sites within its jurisdiction. The largest cost element for most of these sites is the excavation and disposal of contaminated soils. A cost-effective approach is to use "precise excavation," which reduces the amount of unnecessary excavation.

Precise excavation involves identifying an initial excavation footprint and redefining the footprint for subsequent lifts until the entire site has attained predetermined remediation levels. Precise excavation employs a combination of field radiological screening techniques, discrete sample data, and spatial decision support tools.

During the course of soil excavation, thousands of measurements are made each day to guide excavation decision making. These data must be made available in a timely fashion to on-site contractors, Buffalo District program management staff, technical team members who are off site, and regulators.

The Buffalo District is using secure web sites specially designed for this purpose. These web sites offer several advantages to the Buffalo District. Web-site users require nothing more than Internet access and a Java-enabled browser to access the information. Because data are centrally located, the USACE can be confident that all who use the web sites are viewing the same data sets at any given point in time. Site data are immediately available to anyone who has Internet access, the correct login and password, thus allowing the Buffalo District to inform regulators and provide technical assistance to support the remedial activities without requiring management and technical experts to be present at the excavation site.

The ability to collect and utilize information rapidly is beneficial for environmental settings as diverse as site remediation, site characterization, long-term monitoring, and emergency spill response. For all of these applications, efficient and cost-effective data management and dissemination are key components critical for informed decision making. As the work at the Ashland 1 and Ashland 2 FUSRAP sites has demonstrated, Internet-based data management can help to ensure successful remediation projects that are protective and cost effective.

