



## Munitions Response

Technologies for the detection, classification, and remediation of military munitions on U.S. lands and waters.

## Department of Defense (DoD) Need

As a result of past military training and weapons testing activities, military munitions exist on sites designated for Base Realignment and Closure (BRAC), on Formerly Used Defense Sites (FUDS), and on other closed ranges on active installations. The sizes of these sites range from a few acres to tens of thousands of acres. These sites occur in open deserts, farmland, forests, and mountain ranges. Geology and vegetation can be simple and benign or complex and difficult. Munitions ranging in size from 20-mm projectiles to 2,000-pound bombs can be distributed on the surface or buried at these sites showing no visible evidence of their presence.

Many active and former military installations have ranges and training areas that include adjacent water environments such as ponds, lakes, rivers, estuaries, and coastal ocean areas. On other sites, training and testing areas were deliberately situated in water environments. Disposal and accidents have generated munitions contamination in the coastal and inland waters throughout the United States. The underwater environment both restricts access and may significantly impact the performance of established and emerging characterization technologies.

## SERDP and ESTCP's Strategic Investments

SERDP and ESTCP's Munitions Response program area is developing and demonstrating innovative technologies that can characterize, remediate, and scientifically manage sites affected by military munitions. Specific areas of investment are listed below.

- **Land** - UXO-specific sensors (EMI and magnetometers among others), modeling and signal processing, and enabling technologies to improve the detection and classification of buried or sub-surface UXO.
- **Underwater Environments** - Wide area assessment, detailed surveys, recovery and disposal, and underwater phenomenology to support the underwater Military Munitions Response Program. Technologies being explored include acoustics, EMI, magnetometers, and electro-optics.
- **Support Tools** - Initiatives aimed at improving data quality and providing decision support tools to enhance the munitions response process.

## Innovative Environmental Solutions

SERDP and ESTCP investments in science, engineering, and technology help to improve the environment and sustain military readiness. Our researchers have made many distinguished contributions to environmental science and technology. Practical application of these findings provides solutions to the complex challenges of ensuring responsible environmental management while meeting critical military missions. Learn more about our investments and products at [www.serdp-estcp.org](http://www.serdp-estcp.org).