Unexploded Ordnance (UXO) Recovery Database System (RDS)
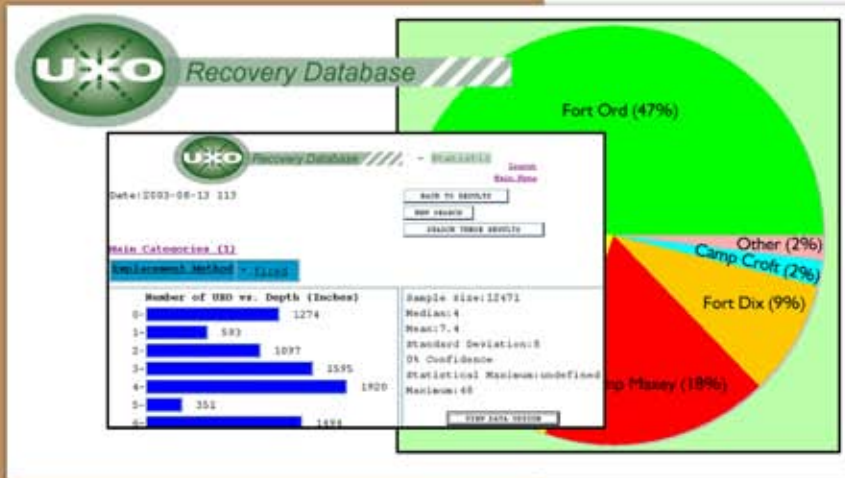

Screen shot of the Summary Statistics and Data Origin Chart Display for the UXO Recovery Database System.

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For more information

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The costs associated with UXO recovery are high and the Defense Science Board Task Force estimates that more than 10 million acres of land are contaminated by UXO. Remediation of these sites will involve tens of billions of dollars. These sites include Formerly Used Defense Sites (FUDS) and Base Realignment and Closure (BRAC) installations that must be cleared of UXO before further use.

The National Defense Center for Environmental Excellence (NDCEE), with assistance from the unexploded ordnance community, redesigned and populated a Web-accessible database for UXO recovery data at Munition Response Sites (MRAs).

The UXO Recovery Database System (RDS) offers users a centralized, electronic repository for UXO recovery data and the capability to perform searches and statistical analyses on legacy data from past UXO recovery efforts. Initially created by the U.S. Army Corps of Engineers, the UXO RDS will help improve the ability of the Department of Defense (DoD) to effectively remediate munitions and explosives of concern at MRAs. The NDCEE seeks to transition this technology to the DoD and other government organizations that participate in UXO recovery and removal operations. Knowledge of historical and current UXO recovery depths provides a sound basis for decision-making at UXO recovery sites.

In addition, the database provides site managers and UXO removal project managers with insight based on various site conditions that can impact UXO depth, including soil and terrain type, detector type, frost depth, etc. The RDS provides data to assist the Joint Services in selecting more efficient technologies for performing UXO recovery efforts based on historical UXO penetration depths.

The RDS condenses complex, cumbersome data sets from UXO reports into a clear, concise, and manageable data format that is more easily manipulated for interpretive decision-making support. Currently, the database represents 30 UXO sites in the United States, Germany, and Panama. The records contain data regarding UXO recovery depth, environmental factors, and UXO detection technologies.

The UXO RDS also includes components for data quality, entry, quality assurance, administration, and search and statistical capabilities for site-specific data management and analysis. The RDS is able to search and analyze any database field. Search results are presented in tabular, statistical, and graphical formats, featuring a histogram of depth versus a user-selected category. The user may exclude any data source and recalculate the statistical results accordingly. All saved searches include a date/time stamp and the search parameters.

Since this database is in its infancy, you are currently limited to a data set of 30 munitions response sites - statistically only a small portion of current sites. The RDS does not provide verification of legacy data outside of removal action reports. A certain bias is presented within the database due to various practices in depth measurement by different removal personnel.

TECHNOLOGY BENEFITS AND ADVANTAGES

- Enables users to conduct a search on any or all database fields and view search results as statistics in a histogram format, which offers a better understanding of UXO penetration characteristics.

- Provides users the capabilities to evaluate and summarize important environmental factors and UXO information.

- Improves the prediction of UXO recovery depths and ultimately defines UXO response needs.

- Aids in developing advanced UXO detection technologies and establishing recovery procedures for restoration projects.

- Provides an option to view the origin of data within the search results.

- Includes components for data entry, quality assurance, and user administration, which provides mechanisms for continual updates, expansion, and maintenance.

- The RDS works with the Electronic Data Collection Tool (EDCT).

POTENTIAL FIELD APPLICATIONS

The RDS is a candidate technology for transition/ implementation at any active or inactive DoD range where UXO recovery data must be collected and maintained.