

MIDAS: MUNITIONS ITEMS DISPOSITION ACTION SYSTEM DATABASE

Argonne helps the U.S. Army Defense Ammunition Center (USADAC) develop databases to support the Munitions Items Disposition Action System (MIDAS) Program. These databases provide essential information for demilitarization planning, resource recovery and reuse, demilitarization waste characterization, and environmental permit application and impact assessment. MIDAS contains an up-to-date inventory of conventional munitions designated for disposition as well as data on the structure and material constituents of the munitions. It is an easy-to-use program for storing, processing, and retrieving data.

■ PROBLEM/OPPORTUNITY

As concerns about environmental effects associated with the demilitarization program increase, options for resource recovery, reuse, and other acceptable methods for disposal of conventional military munitions are being explored. Before MIDAS existed, the information needed to develop and evaluate these options was obtained from many organizations through fragmented and duplicated research.

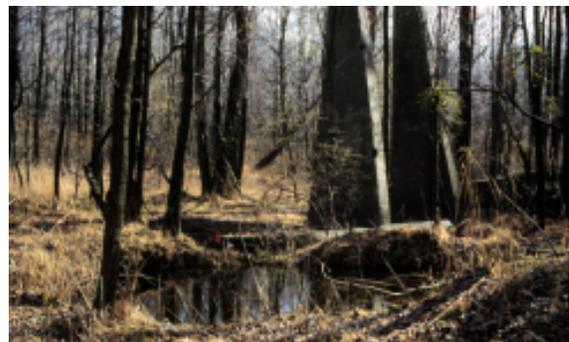
■ APPROACH

The objective of the MIDAS Program is to provide an authoritative central repository for data that eliminates duplication of data development efforts and provides the information needed for the conventional ammunition demilitarization program in an easy-to-use format.

The MIDAS database was created to organize the data for each component and part of a munition into a hierarchical list, which makes the structure easily discernible. For data on a munition to be complete, information on each primary component, its subcomponents, and individual parts must be included. This breakdown enables users to view the munition structure and detailed data associated with each part, such as weight and material specifications.

■ RESULTS

A MIDAS database prototype created by Argonne was used by USADAC to evaluate the structure and characteristic data associated with items in a small number of selected artillery munitions containing propellants, explosives, and pyrotechnics (PEP). On the basis of this evaluation, USADAC and Argonne determined and implemented the database performance functions and input data requirements. Argonne has since finalized the database structure for items containing PEP and inert constituents. Data input procedures and functions were established, and data for more than 4,000 munitions were entered by Army, Navy, and Air Force ammunition experts. The data accuracy



The MIDAS database can help demilitarization planners with resource recovery as an alternative to disposal by detonation, which made this crater.

was checked, and the system functions were verified. Argonne also prepared system documentation and assisted USADAC in conducting user training. Users can extract comprehensive information on munitions or use report options to quickly compute and retrieve total weight and composition statistics for munitions in the MIDAS inventory.

Argonne has subsequently worked with USADAC to develop and implement a Windows-based computer network and Web systems for MIDAS field operation; to develop functions for estimating weights of bulk items and certain parts for which weight information is not available; to add capabilities (such as a procedure to review and incorporate data submitted by satellite installations into a central data library); to prepare additional documents; to provide quality assurance; and to support field operations. MIDAS is available over the World Wide Web, on CD-ROM, and via modem and IBM-compatible PC for access by the MIDAS development team for data entry.

■ HISTORY/STATUS/FUTURE

The operation and maintenance of the MIDAS databases have been the responsibility of USADAC since data loading began. This is an example of the appropriate role of a national laboratory in developing a tool with its federal

partner and then transferring it to the partner for implementation. Since the delivery of MIDAS to USADAC, munition characterization, data entry, and operation have been a USADAC responsibility. Argonne continues to assist USADAC with technical enhancements to the system.

■ COMMUNICATION OF RESULTS

Several documents on MIDAS have been provided to the sponsor, including a user's guide for general users, a user's guide for administrators, a user's guide to new features, a user's guide to the weight estimation program, and a report on the procedures for and results of testing the weight estimation program. USADAC also received CD-ROMs on the MIDAS program. A user's guide that is available to the public was also published.

The capabilities of MIDAS were discussed in papers presented at the Global Demilitarization Symposium, Defense Cleanup Midwest Conference, Air and Waste Management Association meeting, and the 25th Environmental Symposium and Exhibition sponsored by the National Defense Industrial Association.

Additional information about the MIDAS Program, current status of the databases, and user registration information can be found on the USADAC Web site at www.dac.army.mil.