

COLLECTING MIXED WASTE INFORMATION FOR DEPARTMENT OF ENERGY ENVIRONMENTAL RESTORATION ACTIVITIES

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ABSTRACT

The U.S. Department of Energy (DOE) Office of Environmental Restoration is currently developing an integrated data structure to link information on wastes and contaminated media from environmental restoration activities with other program information, including waste management plans. Mixed wastes are a key element of this data system because of the reporting requirements of the recent Federal Facility Compliance Act. The first step taken to satisfy various environmental restoration program needs was to develop a data call that would capture information on contamination and cleanup projections for all environmental restoration sites.

INTRODUCTION

The DOE Office of Environmental Restoration (EM-40) is currently developing an integrated structure to link data on wastes and contaminated media from environmental restoration activities with other program information. That information includes project baselines, progress tracking, the environmental compliance phase of individual facilities (e.g., per interagency agreements), and waste management plans.

Mixed wastes — which are wastes that contain both radioactive and hazardous chemical constituents — are a key element of this data system, due in large part to the reporting requirements of the Federal Facility Compliance Act (FFCA) of 1992. The Act required DOE to prepare an inventory report and site-specific treatment plans that presented volume estimates, characterization data, and treatment projections for mixed wastes.

The first step taken by EM-40 to satisfy the FFCA reporting requirements and other Headquarters program needs was to develop a data call that would capture information on contamination and cleanup projections for all of DOE's environmental restoration sites. Various information needs that were considered during the development of this data collection effort are noted in the following discussion.

INFORMATION NEEDS

A number of important considerations were involved in structuring the EM-40 data call. These included:

- Establishing a framework that would permit the staged collection of site-specific information as it becomes available, recognizing that environmental restoration sites are at different phases of assessment and that data collection and waste management planning will be evolving activities.
- Collecting sufficient detail to satisfy reporting needs for mixed wastes (e.g., land disposal restriction indicators) without "swamping" the characterization of other wastes with nonessential detail.

- Providing a means of linking with project-specific databases (e.g., with waste area or waste stream identifiers), with careful tracking of all mixed wastes.
- Separating the information on contaminated environmental media at a site (i.e., in-place materials that may never be moved) from waste projections that are tied to actual generation (e.g., by excavation), to provide some indication of the range of materials that may be managed.
- Following a "waste flow" philosophy to ensure that all contaminated materials involved in restoration activities are represented and to minimize the double counting of wastes in transition (e.g., between environmental restoration and waste management programs).
- Providing mechanisms for presenting and updating waste volume estimates (including five-year projections for mixed wastes) and for caveating these estimates.
- Ensuring that treatment facility information could be collected at a sufficiently detailed level, particularly for mixed wastes.
- Incorporating information from other relevant regulations and guidance from the U.S. Environmental Protection Agency (EPA), such as the Resource Conservation and Recovery Act, as amended (e.g., hazardous waste codes and technology standards for land disposal restrictions), and EPA's general response categories for cleanup at National Priorities List sites.
- Maintaining consistency with other Headquarters data requests such as waste management data calls for the FFCA mixed waste inventory report and the Integrated Data Base report.

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GENERAL FORMAT OF THE DATA CALL

To address the combined needs for the EM-40 data, it was concluded that a tiered data call should be developed with separate forms for basic characterization data and projected remediation actions. The tiered system consists of summary and detailed information, to provide a means for presenting early, general estimates that can be updated with more specific data as they become available.

Characterization data — including estimated volumes, waste classes, and key contaminants — were collected for three categories of contaminated material: environmental media (such as soil, groundwater, and impounded surface water), stored waste, and contaminated structures/equipment. Information requested for stored mixed wastes was expanded to capture the matrix and treatability information essential for FFCA reporting.

Look-up tables were provided to standardize responses and maintain consistency with other data collection efforts, and these tables incorporated terminology from EPA regulations and related guidance. Entries were included for internal names and identifier codes used by individual projects. Assumption and narrative entries were also included in which supporting explanations and caveats could be presented.

The anticipated responses for all contaminated materials at an environmental restoration site were collected separately from the basic characterization data. This approach permits distinctions to be made between waste materials and contaminated environmental media that may never become waste, depending on the remedy that is eventually selected in accordance with each site's assessment process.

The EM-40 data call was designed to capture the volumes of wastes that are anticipated to be generated by remedial actions and decontamination and decommissioning activities

in addition to the projected fate of any treatment products (including further treatment where this was indicated). The structure that was developed for this information allows treatment activities to continue to loop through the projected next step of waste management, through final disposition, with identifiers assigned to track the different products of the treatment processes. Thus, a cradle-to-grave framework was established that provides a means for collecting data on environmental restoration activities across the DOE complex as they become available.

RESULTS

Despite facing a new and more integrated data call structure, the field responses demonstrated a commendable effort to compile comprehensive pieces of site-specific information into a consistent framework for each environmental restoration project. These responses ranged from very general (with numerous "unknown" entries for volume and contaminant data) to fairly detailed, as expected based on the varied phases of characterization and response planning in which sites across the DOE complex find themselves.

The field data are currently being compiled across projects to satisfy specific reporting needs, focusing first on mixed waste information for the FFCA. Data received from the various environmental restoration sites will become part of an electronic system that will be integrated at the program level to support coordinated planning and reporting.

In response to a growing need to track DOE environmental restoration wastes from generation through disposal, these data will continue to be updated as field knowledge increases. The current structure for these data is central to the even larger DOE Headquarters effort to integrate key information across all programs.