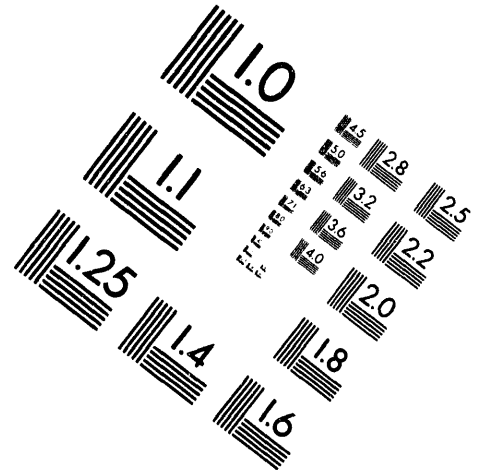
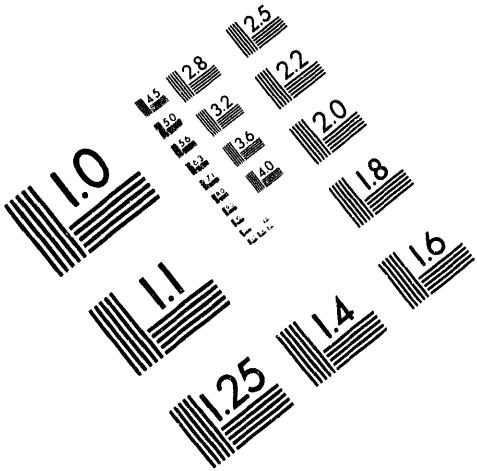




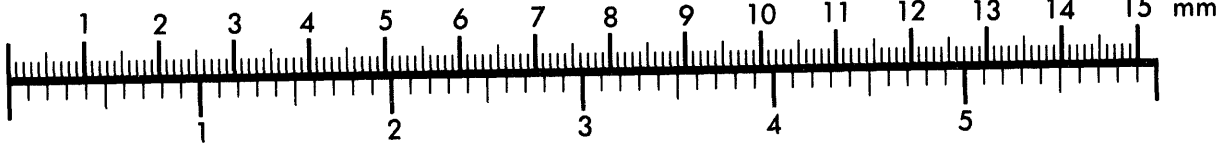
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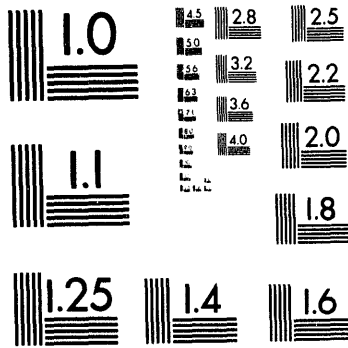
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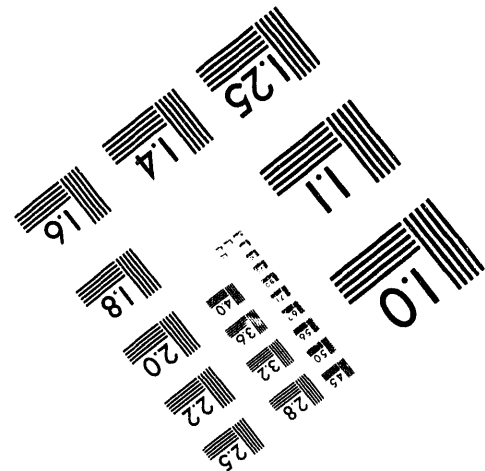
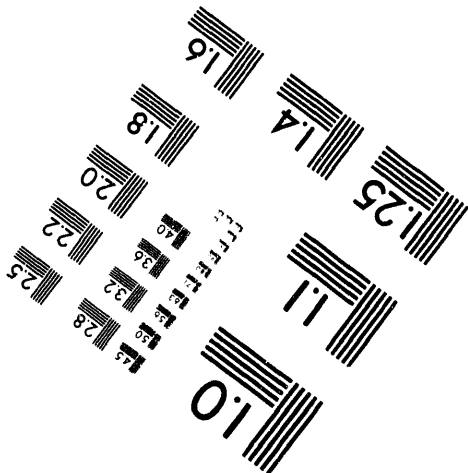
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# Transuranic Partnership - Benefits to the Department of Energy

Prepared for the U.S. Department of Energy



**Westinghouse**  
**Hanford Company** Richland, Washington

Hanford Operations and Engineering Contractor for the  
U.S. Department of Energy under Contract DE-AC06-87RL10930

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## THE TRANSURANIC WASTE PROGRAM'S INTEGRATION AND PLANNING ACTIVITIES AND THE CONTRIBUTIONS OF THE TRU PARTNERSHIP

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### ABSTRACT

The Technical Support Division, EM-351 manages the integration and planning activities of the Transuranic Waste Program. The Transuranic Waste Program manager provides transuranic waste policy, guidance, and issue resolution to Headquarters and the Operations Offices. In addition, the program manager is responsible for developing and implementing an integrated, long-range waste management plan for the transuranic waste system. A steering committee, a core group of support contractors, and numerous interface working groups support the efforts of the program manager. This paper provides an overview of the U.S. Department of Energy's transuranic waste integration activities and a long-range planning process that includes internal and external stakeholder participation. It discusses the contributions and benefits provided by the Transuranic Partnership, most significantly, the integration activities and the body of data collected and assembled by the Partnership.

### INTRODUCTION

The Office of Environmental Restoration and Waste Management (EM) centralizes and directs the waste management and environmental cleanup activities of the U.S. Department of Energy (DOE). Within EM, the Office of Waste Management (EM-30) has the primary responsibility for managing the waste generated by DOE's processing, manufacturing, research and development, and site cleanup activities. The program's mission is to minimize the future generation of waste; treat, store, and dispose of waste in a timely fashion; protect human health and safety and the environment; and conduct operations in a technically sound, economical, and publicly acceptable manner. DOE policy requires that its' facilities be managed in compliance with applicable Federal, State, and local regulations. Figure 1 represents the major operational components within the Waste Management System. This system includes administrative, engineering, and operational activities from the time waste is generated until it is permanently disposed of.

PLACE FIG. 1 HERE

### BACKGROUND

During the past 40 plus years, transuranic (TRU) waste has been produced primarily from nuclear weapons research and production activities. Decades of production have resulted in large quantities of TRU waste stored in anticipation of modern disposal options. With the end of the Cold War and the related shift in global defense priorities, future TRU waste will come primarily from environmental restoration of inactive disposal sites and decontamination and decommissioning of surplus facilities.

Currently, the DOE has programmatic responsibility for managing approximately

255,000 m<sup>3</sup> of TRU waste at numerous sites across the complex. Figure 2 shows the geographical locations of TRU waste generator/storage sites.

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The complex comprises five major sites [the Hanford Site, Idaho National Engineering Laboratory (INEL), Los Alamos National Laboratory (LANL), Oak Ridge National Laboratory (ORNL), and the Savannah River Site (SRS)], which contain 99 percent of the TRU waste inventory; six minor sites [Rocky Flats Plant (RFP), Sandia National Laboratories (SNL), Lawrence Livermore National Laboratory (LLNL), Nevada Test Site (NTS), Argonne National Laboratory-East (ANL-E), and Mound]; and more than 15 small-quantity sites.

Before 1970, most TRU waste was commingled with other waste types and buried on site in shallow landfills (i.e., pits and trenches) with no plans for retrieval. In 1970, it was concluded that waste containing long-lived alpha-emitting radionuclides should have greater confinement from the environment than the shallow land burial provided. Thus, all TRU waste generated since 1970 has been segregated and placed in retrievable storage pending disposal in a permanent geologic repository. The waste is contained in a variety of packaging (metal drums, wooden and metal boxes, concrete culverts, etc.) and is stored on earth-covered pads (above and below ground level) and in a variety of other facilities. Current estimates, based on information provided by the sites, indicate that approximately 190,000 m<sup>3</sup> of TRU waste are buried and about 65,000 m<sup>3</sup> are retrievably stored. It is further estimated from DOE's 1993 Mixed Waste Inventory Report that approximately 58,000 m<sup>3</sup> of the retrievably stored TRU waste also contain hazardous constituents defined and regulated by the *Resource Conservation and Recovery Act of 1976*. Figure 3 shows the distribution, by site, of the buried and retrievably stored TRU waste inventory.

PLACE FIG. 3 HERE

#### RESPONSIBILITIES AND ORGANIZATION STRUCTURE

Currently, the responsibility for integration and long-range strategic planning for TRU wastes resides in the Technical Support Division (EM-351). The TRU Waste Program (TWP) manager is responsible for developing TRU waste policy; providing guidance, technical support, and issue resolution to Headquarters and the operations offices; and developing a strategy and a long-range, integrated management plan. A steering committee, a core group of support contractors, and various interface working groups support the program manager. Figure 4 shows the TWP organization.

PLACE FIG. 4 HERE

The steering committee is made up of personnel from Headquarters and the operations offices and serves as a vital communication link between Headquarters, the operations offices, and the sites. They provide guidance and oversight to the direction of the TWP, assist in formulating policy and guidance, identify and assist in resolution of both site-specific and complex-wide problems and issues, and support the integration and planning activities.

The support contractors provide technical support for near-term TWP activities

(i.e., special studies, reports, issue papers, etc.) and are responsible for developing the TWP strategy and the Long-range Integrated Management Plan. They work closely with the steering committee, the various TWP working groups, and the stakeholders.

The working groups contain both DOE personnel and support contractors. They are normally established to respond to both near-term and long-term technical problems and issues. Because the current TRU waste strategy focuses on disposing of TRU waste in the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico, the TWP manager works closely with the WIPP Project Integration Office (WPIO) and its interface working groups.

The TRU Partnership is a working group composed of representatives of managing and operating contractor employees from across the TRU generator/storage sites. The Partnership evolved on its own from a recognized need for increased communication and project coordination. The members of the Partnership have become active participants and valuable contributors to the TWP integration and planning process.

#### STRATEGY AND LONG-RANGE PLANNING PROCESS

Historically, TRU waste has been managed on a site-specific basis. While this bottom-up approach is supported by Federal Facility Compliance Agreements with the states and more recently by the Federal Facility Compliance Act, the activities and methods used to manage TRU waste vary considerably across the complex. Recognizing that this situation did not fully support the vision of an efficient, cost-effective management system, DOE decided that greater emphasis needed to be placed on systems analysis, systems integration, and strategic planning. EM-351 established the DOE TRU Waste Integration (DTWI) Project to address these needs. Figure 5 shows a six-step planning process developed by the DTWI Project and its resulting key products.

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The primary objective of the planning process is to develop a strategic plan and a goal-oriented long-range integrated management plan. Success in developing this plan depends on a thorough understanding of the current system elements and their mode of operations and devising a method of integrating the elements so they work well together. An integrated system will reduce duplication of costs and efforts, encourage widespread use of developed technologies, and accelerate waste disposal and site cleanup schedules.

The process begins with establishment of a vision that identifies the desired mission, goals, and objectives for the future TRU waste system. This vision is documented in a future-state vision report and forms the basis for most other activities. Next, information about the current state is obtained and used to prepare the Current State System Description (CSSD). The CSSD is a baseline document that describes facilities, operations, external environments, capabilities, and limitations for the individual sites and as an entire system. By comparing the current state to the future vision, significant gaps that need to be overcome can be identified. By using a structured development and analysis approach, a strategy that supports a viable program to overcome these gaps and integrate the system elements can be selected. The program vision, goals, assumptions, issues, and selected



strategy are documented in the Strategic Plan. Based on the Strategic Plan, the Future State System Description, which details the physical system and operating and management processes needed to achieve the future state, is developed. Using this description, a long-range integrated management plan is developed that defines the activities, timeframes, costs, and responsibilities for implementing the Strategic Plan and transitioning from the current state to the future state. The DOE is committed to creating a culture of openness, responsiveness, and accountability in its waste management planning and implementation activities and is striving to inform and involve stakeholders in the decision-making process.

#### STAKEHOLDER PARTICIPATION

Stakeholder participation, both internal and external to DOE, is considered crucial to the success of the planning process. A DTWI Stakeholder Involvement Plan is being developed in coordination with the DOE Public Participation Plan. One part of this plan uses a workshop format to bring participants together to propose and develop assumptions, criteria, and alternative strategies and establish a ranking by which the resulting strategies are judged. Three workshops using DOE internal stakeholders have been conducted. These workshops provided a mechanism for the internal stakeholders to participate in the planning process. They also served to test and refine the workshop format. Once the stakeholder plan is approved and properly coordinated with the DOE Public Participation Plan, external stakeholder participation in TRU waste planning will proceed.

#### TRU WASTE PARTNERSHIP

The TRU Waste Partnership was organized in 1989, approximately two years before EM-351 began the TRU strategic planning initiative. The Partnership developed during the design phase of the solid waste treatment facilities at INEL and Hanford when DOE Headquarters and the Richland Operations Office realized that INEL and Hanford, as well as all other TRU sites, could benefit from the exchange of ideas and technology. The first meeting of the Partnership was hosted by the Hanford Site in August 1990 and included representatives from DOE, INEL, ORNL, SRS, and WIPP. Since then, the Partnership has expanded to include representatives from most of the other major TRU waste sites: LANL, SNL, RFP, and LLNL. The Partnership's objectives are to better integrate projects and operations between sites by:

- Identifying and seeking common solutions to issues affecting solid waste facilities and technology
- Fostering intersite lines of communication and exchange of information and technology to help resolve site-specific and complex-wide issues.

Partnership interactions have resulted in more efficient projects and operations across the complex and reduced duplication of efforts.

#### TWP CONTRIBUTIONS BY THE PARTNERSHIP

As a way to share information about projects, facilities, and operations, the Partnership developed and submitted a comprehensive data package to Headquarters in April 1993. The data package has the following components.

- Information on TRU waste inventories
- A facilities comparison matrix
- Project fact sheets
- A technology development matrix.

TRU waste inventories are described using pie charts and graphs that summarize the volume and radioactivity of both contact- and remote-handled TRU waste at each of the major TRU waste sites. The facilities' comparison matrix compares the active projects at the sites according to design parameters, status, cost, size, hazard class, waste-handling capabilities, and inventory by container types. The project fact sheets provide additional details and contain information about each facility's environment and safety and health design parameters. The technology development matrix identifies development activities, development needs and local points of contact. The development matrix includes such items as non-destructive assay and examination capabilities; remote handling and transfer systems; sorting, size-reduction, and decontamination techniques; and treatment options. The data package, which the Partnership updates frequently, can serve as a model for gathering and organizing data for the small-quantity TRU generator/storage sites and for other waste types. EM-351 is working to expand the matrices to include additional facilities and data fields as part of its current-state systems analysis.

The Partnership, along with other DOE personnel, participated as internal stakeholders in the second strategy development workshop conducted by the DTWI Project Office. The workshop participants felt strongly that the traditional approach of informing and involving external stakeholders only after the mission, visions, and strategies have been determined, dooms the whole program to fail. They emphasized that the key to program success lies in involving stakeholders early and at every step in the planning process. So emphatic were their concerns that a meeting was arranged before the Assistant Secretary, EM-30 to discuss the stakeholder plan and seek approval to proceed with external stakeholder involvement. The plan is currently being coordinated with DOE's Office of Public Accountability. Until the external stakeholder become more involved, products developed from the DTWI Project planning process are to be considered "conceptual."

## CONCLUSION

The TRU Waste Program is currently being reorganized. Many management responsibilities are being shifted from DOE Headquarters and the Albuquerque Area Office to a newly created Area Office in Carlsbad, New Mexico. Although roles and responsibilities for the TRU waste program are presently uncertain, the TRU waste integration and planning processes are expected to continue and development of a long-range integrated management plan is projected for late 1995. The TRU Partnership will continue to support and enhance the TRU waste program at the grass-roots level in day-to-day activities related to projects and operations involving TRU waste.

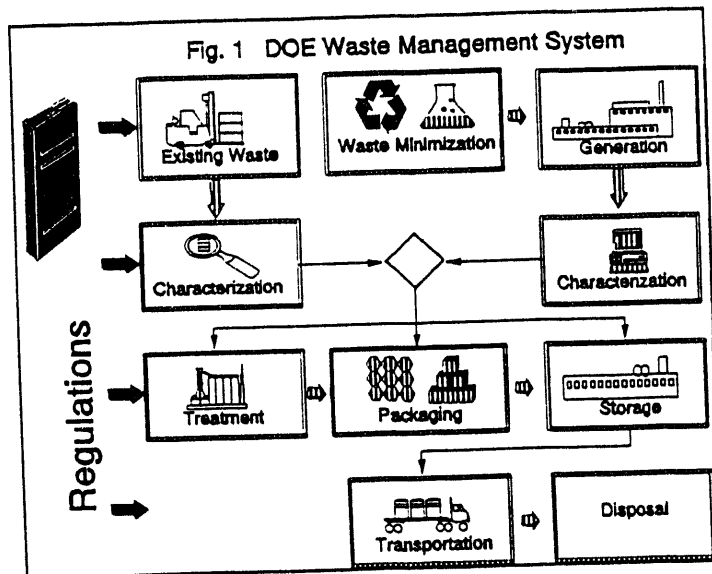


Fig. 2 TRANSURANIC WASTE GENERATOR /STORAGE SITES

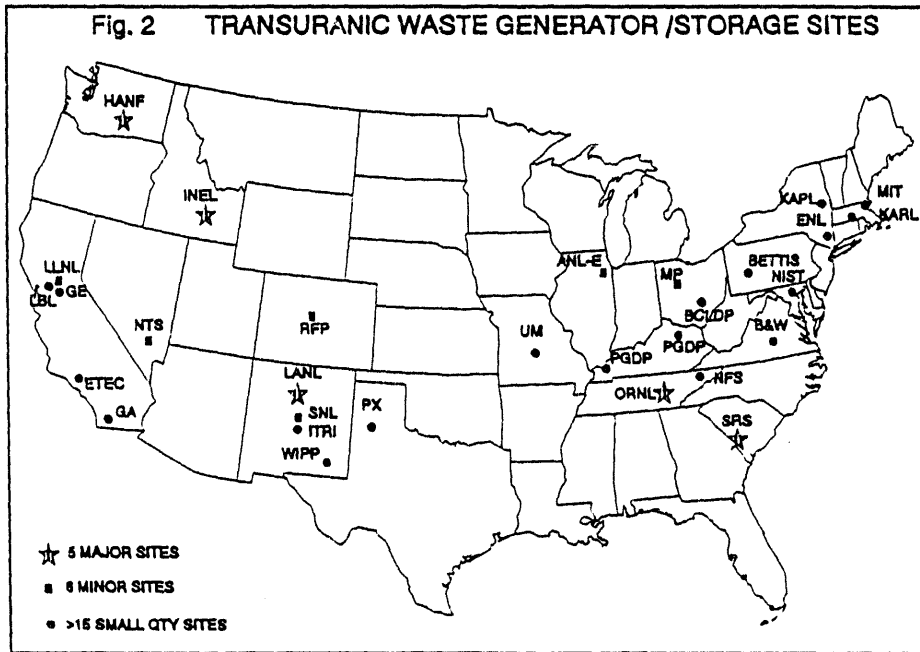


Fig. 3 1992 Inventory of TRU Waste

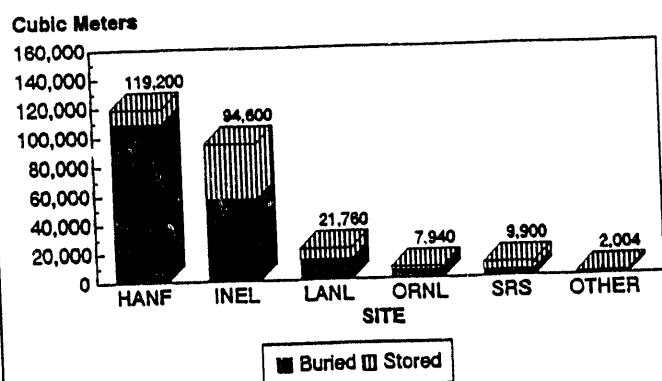
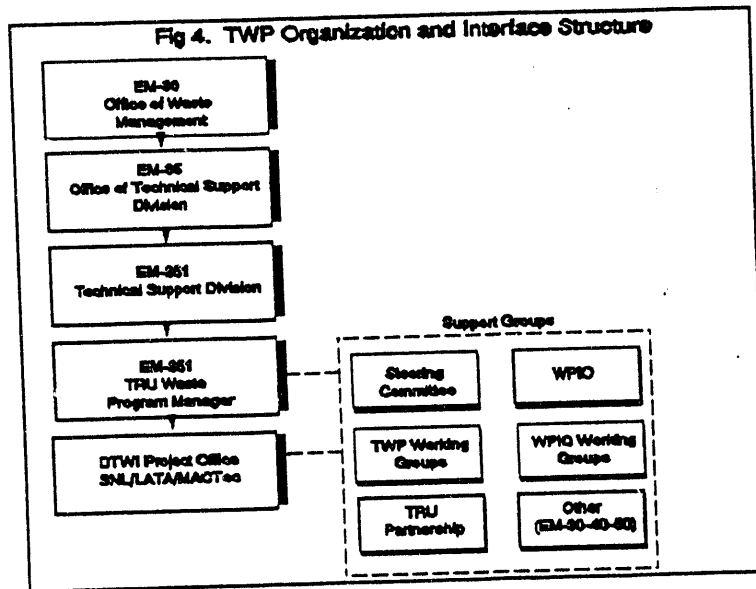
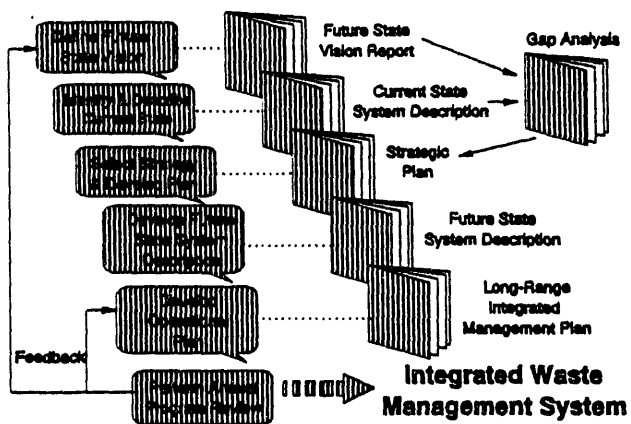


Fig 4. TWP Organization and Interface Structure



**Fig. 5 Transuranic Waste Program Planning Process  
- Developing Strategy and the Long-range Management Plan -**



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