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Title: OVERVIEW OF THE NATIONAL TRANSURANIC WASTE SYSTEM

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Overview of the Optimization of the National Transuranic Waste System

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Introduction

The U.S. Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP) became a reality with the first receipt of waste in March 1999. The years of planning, certification, and permitting milestones were met and the facility began its' mission of safe disposal of the nations transuranic (TRU) waste. Today, more than 12,000 drum equivalents of TRU waste are resting safely in bedded salt 2,150 feet (nearly one-half mile) beneath the surface of the New Mexico desert—a rock formation that has not moved since it formed some 250 million years ago.

It took more than 20 years to build, license and open the WIPP as the nation's first deep geologic repository for the permanent disposal of defense-generated TRU waste now stored above ground at 23 sites across the country. As it was throughout those 20 years, safety is the number one priority and most significant achievement as the project moves into its third year of disposal operations.

The DOE has recognized that the complex administrative and regulatory requirements for characterization, transportation, and disposal of TRU waste are costly. The DOE also believes that compliance with all requirements is an important aspect to all operations; however, administrative and operational enhancements can and should be implemented to most efficiently and cost-effectively optimize disposal of TRU waste.

Results and Discussion of Work

The DOE and the sites that are currently shipping TRU waste to WIPP have learned that significant scientific, engineering, regulatory, and political issues and challenges remain to be addressed. Congress and the American people expect DOE to meet its commitment to clean up its cold war legacy and protect future generations from its remnants. WIPP is owned by and accountable to the American people and they expect us to find ways to apply the lessons we have learned since it's opening.

The history of the past three years, has taught us that we must become more efficient, and implement administrative and operational efficiencies that will improve operations while constantly looking for ways to optimize the entire system. The National TRU Programs objective is to complete the current WIPP mission for the disposal of the nation's legacy TRU waste 10 years early—thereby saving \$7B by increasing the operational efficiencies of the National TRU Waste System.

This Optimization Plan is the result of the effort to suggest changes that can speed up the cleanup, increase safety, and cut costs. The plan outlines ideas and proposals for change that in some cases are rather controversial and may not come to fruition. Each idea is presented with the understanding that all regulatory processes, approvals and opportunities for public comment will be followed. Many of these changes will require regulatory approval, and the DOE is actively soliciting stakeholder involvement and comments on all aspects of our proposals. The proposed end states described in this plan define the recommendations that the National TRU Program should follow in order to make it as functional as possible (optimized).

The National TRU Waste Program is being restructured using a performance-driven approach to conducting business, similar to commercial disposal facilities. The DOE is implementing initiatives to run the program like a business, using best business practices of standardization and economy of scale. The restructured Program has two innovative components: (1) a National TRU waste Complex Corporate Board (1) that serves as a consensus-building body to oversee an integrated DOE TRU Waste System, and (2) a National TRU Waste Optimization Plan (2) that identifies changes and the context whereby changes will be made.

Figure 1 depicts graphically the implementation of the major efforts and initiatives to restructure the National TRU Program.

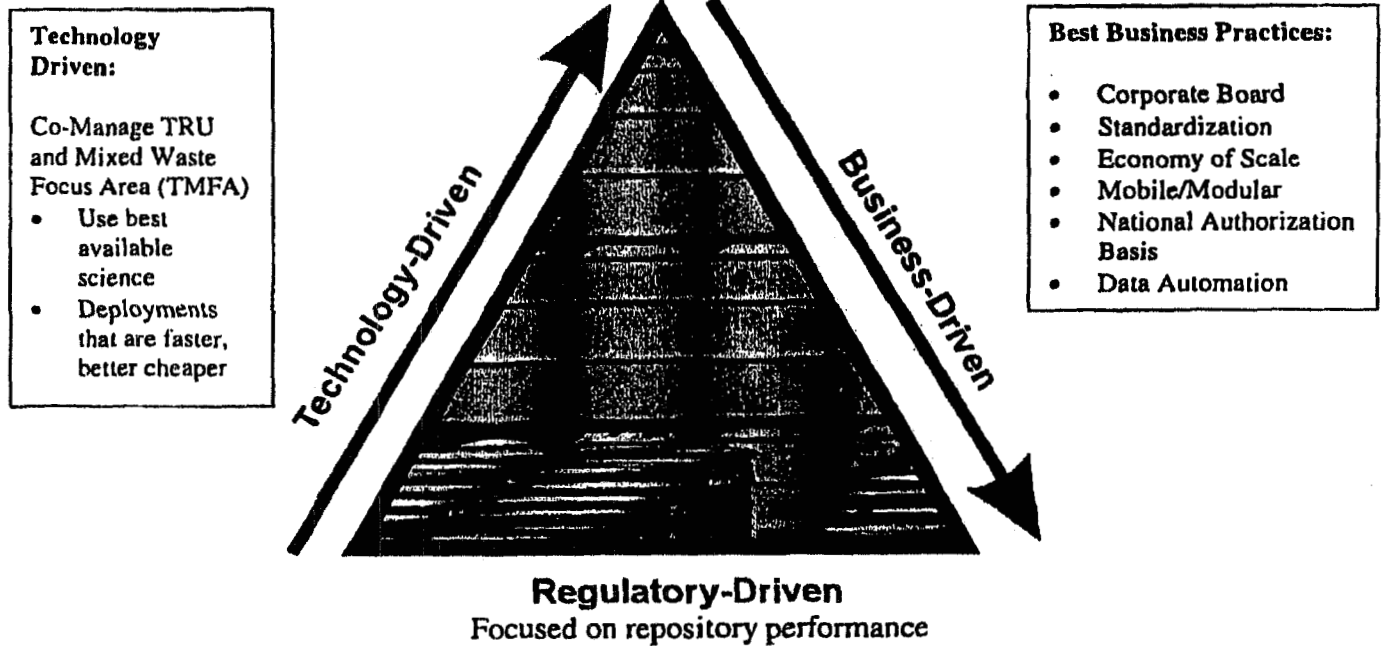


Figure 1: Implementation Approach to Optimization

Optimization Goals and Process

The Optimization Plan outlines efforts to optimize the system by integrating and managing several objectives designed to achieve the NTP vision safely, efficiently, and at minimum cost. These major objectives include:

1. Replacing the current certification-documentation system with a performance-driven system.
2. Ensuring all administrative and operational changes being considered are technically defensible and based on safety or legal considerations.
3. Obtaining modifications to permit conditions to allow more efficient operations in compliance with regulatory requirements.

4. Using cost-effective technology to improve current treatment, characterization, transportation, and disposal methods to the maximum extent possible.
5. Improving TRU waste system performance metrics by developing improved:
 - Waste inventory data;
 - Understanding of real-time waste inventory characterization/certification status; and
 - Cost metrics.

The performance-based optimization process is iterative and involves the following steps:

- Identifying barriers impeding the flow of TRU waste. Barrier identification may occur anywhere within the national TRU waste system.
- Identifying and evaluating options for removing barriers to the flow of TRU waste from generator/storage sites to WIPP. Selection criteria include effectiveness and efficiency of process, cost, timeliness, feasibility of implementation, and expert opinion.
- Developing plans and timelines for implementation of those options that will achieve compliance, operational efficiencies for treatment, characterization, transportation, and disposal of TRU waste at WIPP.
- Developing and deploying technologies through the DOE Environmental Management's Office of Science and Technology's TRU Mixed Waste Focus Area (TMFA) that will have significant, positive impact on the capability of the DOE Complex to characterize, ship, and dispose of TRU waste.

- **Monitoring performance of optimization projects through project-control methodologies. Tracking performance factors (throughput and cost) for trending and for future decision-making.**
- **Reviewing and prioritizing the needs of the TRU waste system to ensure that all goals of system optimization are met.**
- **Developing data throughout the optimization process to ensure that proposed optimized procedures produce the desired results. Most importantly, the first and last step of the process is to use the plan as a tool to engage stakeholders and regulators.**

Optimization activities focus on monitoring regulatory requirements and the WIPP Hazardous Waste Facility Permit (HWFP) modification initiatives while developing and implementing technology and RD&D activities in their support. The effort also involves monitoring the TRU waste inventory to ensure that all TRU waste targeted for disposition at WIPP has a path for disposal. It is anticipated that the most rapid improvements to the national TRU waste system using this process will be in the area of administrative and operational efficiencies. Regulatory change, on the other hand, may provide the most significant improvements. Technology deployments and RD&D activities will be used to support breakthrough improvements in the areas of administrative/operational efficiency and regulatory change, and enhance the overall efficiency of the TRU waste system.

Conclusions

As the WIPP enters its third year of operations, many milestones have been met and yet many more are to be achieved. This paper discusses optimization efforts, including the implementation of the National TRU Waste Complex Corporate Board, technology developments and improvements, regulatory changes and compliance, and innovative approaches to implementing the corporate business approach. The WIPP has grown from an experiment to an operating facility. The implementation of the corporate business model, technology enhancements, and appropriate regulatory change is the next step as the WIPP project matures. Implementing appropriate regulatory change and development of technologies to support an integrated system will further enhance the operational efficiency of characterization, transportation, and disposal activities. All of this will continue to be based on the prime mission of safety and compliance with all regulatory requirements.

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