

**U. S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT**

**NUCLEAR WASTE TECHNICAL REVIEW BOARD
ENGINEERED BARRIER SYSTEM, TRANSPORTATION AND SYSTEMS
JOINT PANEL MEETING**

**SUBJECT: DOE MANAGEMENT STRATEGY
AND PLAN FOR THE INTERIM
STORAGE OF SPENT FUEL**

PRESENTER: LAKE H. BARRETT

PRESENTER'S TITLE

**AND ORGANIZATION: Deputy Director, Office of Civilian Radioactive
Waste Management**

PRESENTER'S

TELEPHONE NUMBER: (202) 586-6850

**Dallas, Texas
November 1-2, 1993**

Agenda

- **OCRWM Program Goals and Priorities**
- **Key Planning Assumptions**
- **Storage and Transportation Strategies**
- **Interim Storage Progress and Plans**

Program Goal

- **Objectives of the Nuclear Waste Policy Act of 1982 (NWPA) have not been achieved as authors envisioned**
- **Little satisfaction with process**
- **No consensus on solution**
- **National dialogue is needed to develop a solution**
- **DOE will lead in forging a solution through a national dialogue**

Program Priorities

- **Maximize scientific investigations of Yucca Mountain**
- **Enhance Waste Acceptance through MRS siting, MPC development, transportation capability in 1998**
- **Limit program support activities**
- **Support Secretary's goals of stakeholder involvement**

OCRWM Program

- **System point of view is key to priorities, strategies, and decisions**
- **Contingency planning is part of process**
- **Improving system performance through standardization and minimizing fuel handlings is a major factor**
- **Controlling national program costs is mandatory**
- **MPC system under evaluation may lead to standard MPC being available in 1998**
- **Long term we will have functioning repository**

Interim Storage Mission Statement

The key elements for DOE:

- **Work with utilities for an integrated DOE/Utility approach to effective at-reactor dry storage**
- **Vigorously pursue a volunteer storage site**
- **Standardize SNF packages to help DOE and utilities minimize impacts of the waste management system**
- **Investigate an MPC system suitable for storage and transportation and compatible with disposal**

Key Planning Assumptions

- **Waste Acceptance**
 - SNF accepted according to oldest fuel first allocation rights
 - No-new-orders discharge projections

- **Storage**
 - Interim fuel storage is a reality
 - Dry storage is a reality
 - MRS siting will continue through the voluntary process
 - Planning basis for earliest “greenfield” MRS is 2000
 - MPC can be available in 1998 to mitigate the national impacts of interim storage

Key Planning Assumptions (continued)

- **Transportation**
 - Existing casks can be used in 1998
 - Advanced technology truck casks are being developed
 - Rail casks can be developed to transport MPCs beginning in 2000
- **Disposal**
 - Repository will be available in 2010 or later
 - MPCs can be designed to be compatible with 10 CFR 60 requirements
- **Program Funding**
 - Program will receive adequate funding beginning in FY 1995 or the program should be restructured

Interim Storage Strategy

- **Support voluntary siting of a pre-disposal storage facility**
- **Evaluate, and, if warranted, design, develop, and procure MPCs**
- **Support MRS design consistent with progress in siting**
- **Work with stakeholders to find a satisfactory approach for interim spent fuel management**

Transportation Strategy

- **Continue transportation system development for**
 - **New technology casks**
 - **If warranted, MPC transportation casks**
- **Develop minimal capability to move some spent fuel in 1998**
 - **Utilize existing casks**
 - **Provide technical issue resolution**
 - **Continue work on institutional activities**
- **Maintain stakeholder involvement in on-going transportation program**

The Systematic Development and Deployment of the Multi-Purpose Canister System

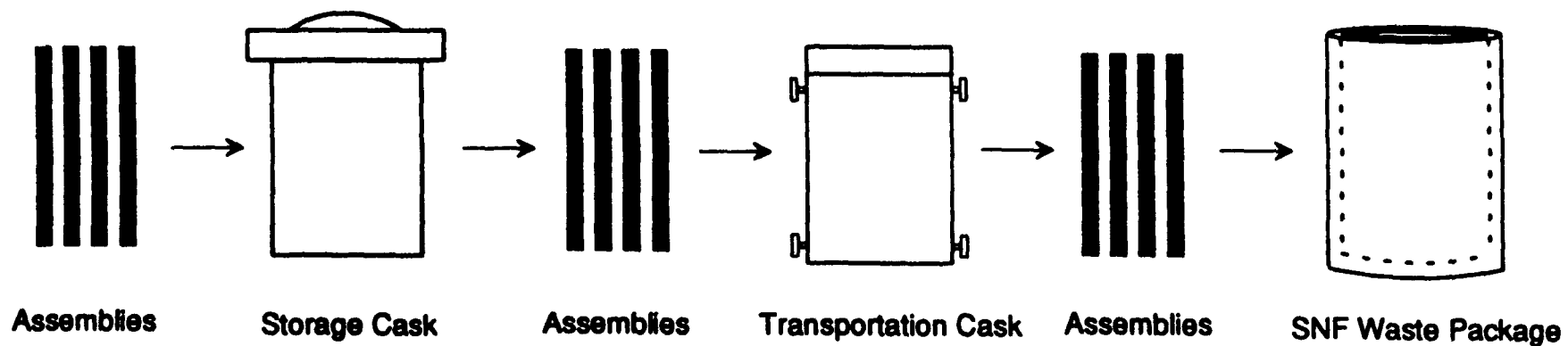
Major Milestone	Date
• Feasibility study	Nov '92
• Implementation program Conceptual Design Report	Sept '93
• Baseline change proposal approval	Jan '94
• Multiple vendor design contracts	Dec '94
• Review deployment decision	June '96
• NRC approval of vendor designs	June '97
• Initial fabrication procurement	June '97
• Initial deployment to utilities	Jan '98
• Review deployment decision	'99, '01

Preliminary Evaluation

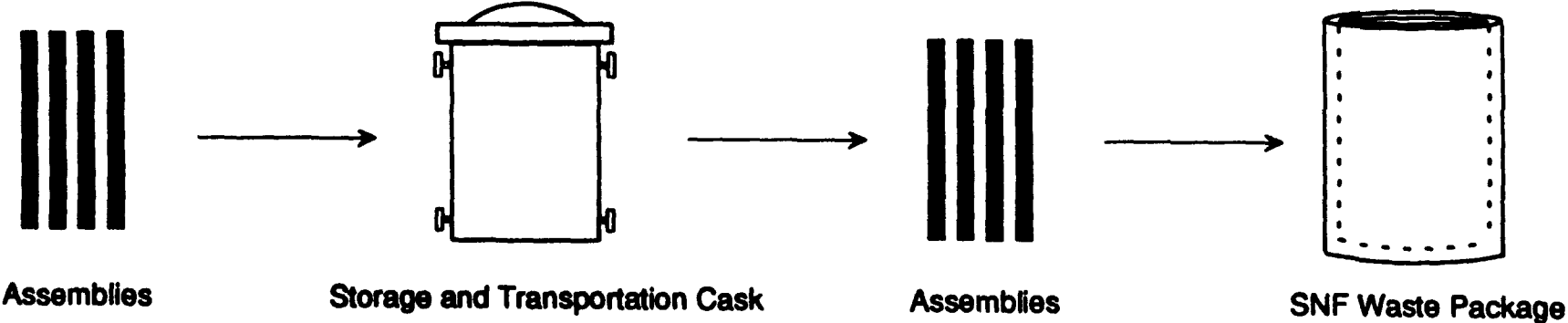
Single Purpose Cask System (Reference System)	Dual Purpose Cask System (TSC)	Dual Purpose Canister System	Multi-Purpose Cask System (MPU)	Multi-Purpose Canister System (MPC)
Individual SNF assemblies transferred to cask/canisters at owners sites, MRS, and MGDS	Individual SNF assemblies loaded into TSCs at owners sites and transferred to waste package at MGDS	Individual SNF assemblies loaded into DPCs at owners sites and transferred to waste package at MGDS	Individual SNF assemblies loaded into MPUs at owners sites and remain in MPU for disposal	Individual SNF assemblies loaded into MPCs at owners sites and remain in MPC for disposal
Cask/canisters optimized for single purpose	TSC design optimized for storage and transport. Need waste packages for disposal	DPC designed for storage and transport. Requires transfer between storage and transport overpacks	MPU designed for storage, transport, and disposal. Needs neutron shield for transport. Serves as its own waste package.	MPC designed for storage, transport and disposal--needs overpacks for storage, transport, and disposal
3 cask/overpacks designs* & 1 waste package design	1 cask design* & 1 waste package design	3 cask/overpack designs* & 1 waste package design	1 cask/overpack design*	3 cask/overpack designs* & 1 waste package design*
~ 1.2M SNF handlings & 64,000 cask load/unload	~600,000 SNF handlings & ~32,000 cask load/unload	~600,000 SNF handlings & ~64,000 cask load/unload	~300,000 SNF handlings & ~16,000 cask load/unload	~300,000 SNF handlings & ~64,000 cask load/unload
Life cycle cost \$1 billion higher than MPC	Life cycle cost \$4 billion higher than MPC	Life cycle cost \$1.5 billion higher than MPC	Life cycle cost \$3 billion higher than MPC	Lowest life cycle cost

* For each size class

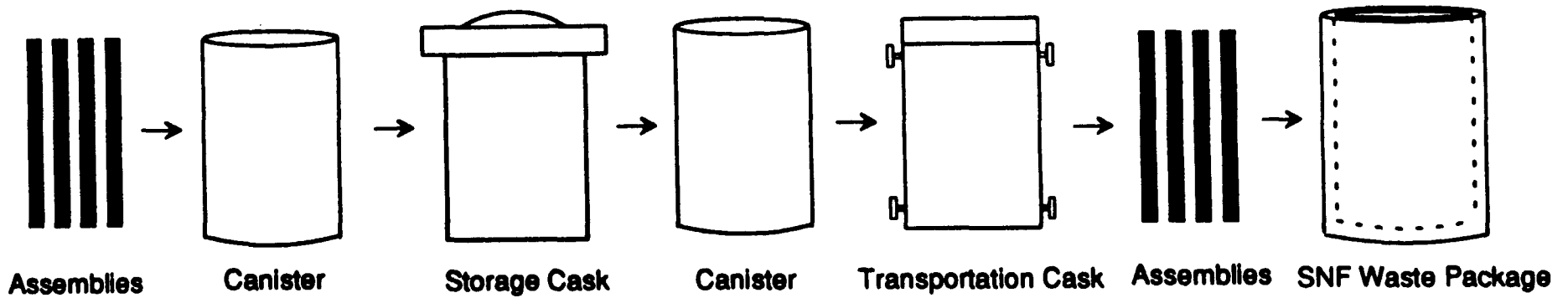
Single Purpose Cask System (Reference System)



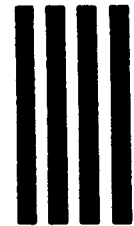
Dual Purpose Cask System (TSC)



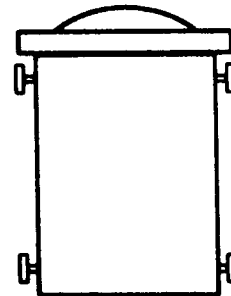
Dual Purpose Canister System



Multi-Purpose Cask System (MPU)



Assemblies



**Storage, Transportation,
and Disposal Cask**

Multi-Purpose Canister System (MPC)

