

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

NUCLEAR WASTE TECHNICAL REVIEW BOARD

**SUBJECT: MULTI-PURPOSE CANISTER
CONSIDERATIONS IN SYSTEM
THERMAL MANAGEMENT**

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Decision To Proceed With Development of MPC-Based System

- **MPC evaluations completed - late 1993**
 - **Support from NRC, ACNW, NWTRB, Utilities, Trade Associations, and others**
 - **Interface issues identified, including Repository Thermal Loading considerations**
- **Secretary announced decision to proceed with design and certification - February 1994**

First Steps

- **Want to incorporate expertise of vendors in development of OCRWM SNF Management System**
- **Request for Proposals released - June 1994**
- **Proposals received and currently under evaluation - Award for design April 1995**
- **MPC EIS scoping hearings to begin in November 1994 - Las Vegas, Chicago, Washington DC**
- **Record of Decision - Fall 1996**

MPC Deployment

- **Distribution of MPCs to be determined after completion of May 25, 1994 NOI rulemaking**
- **Other distributions may occur as a result of interactions among utilities and/or vendors**
- **Utilities have right to select any fuel over five years old, consistent with allocation rights**

Needs and Uncertainties

- **MPC-based system would:**
 - Minimize routine handling of SNF assemblies throughout system
 - Introduce elements of standardization and compatibility among MPC SNF-handling components
- **MPC consistent with near-term needs and long-term uncertainties**
 - Storage and Transportation -- near-term needs
 - Disposal -- Long-term uncertainties
- **Minimize programmatic risks -- maintain flexibility**

Repository Thermal Loading Considerations

- **MGDS thermal loading decisions could affect MPC design**
- **Range of MGDS thermal loading options is being evaluated and will be considered in MPC design**
- **Current thermal requirements for MPC:**
 - The MPC shall be designed so that the thermal output at the time emplacement does not exceed 14.2 kW and the peak SNF cladding temperature in the loaded MPC does not exceed 350 C when subjected to an MPC external wall temperature of 225 C.**
- **Thermal output at time of MPC loading may be different from that at emplacement**

Possible Responses to Thermal Loading Contingencies

- **Contingencies for thermal management have been identified**
 - Longer surface storage to allow reduction in heat output, if required
 - Alter spacing of waste packages in the drifts or other repository design measures
 - De-rating of MPCs
 - Re-design of the MPC
- **Although initial MPC procurement (< 2% of total) may be at risk, later procurement decisions can take into account thermal loading contingencies**