



Multi-Purpose Canister (MPC)

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U.S. Department of Energy**

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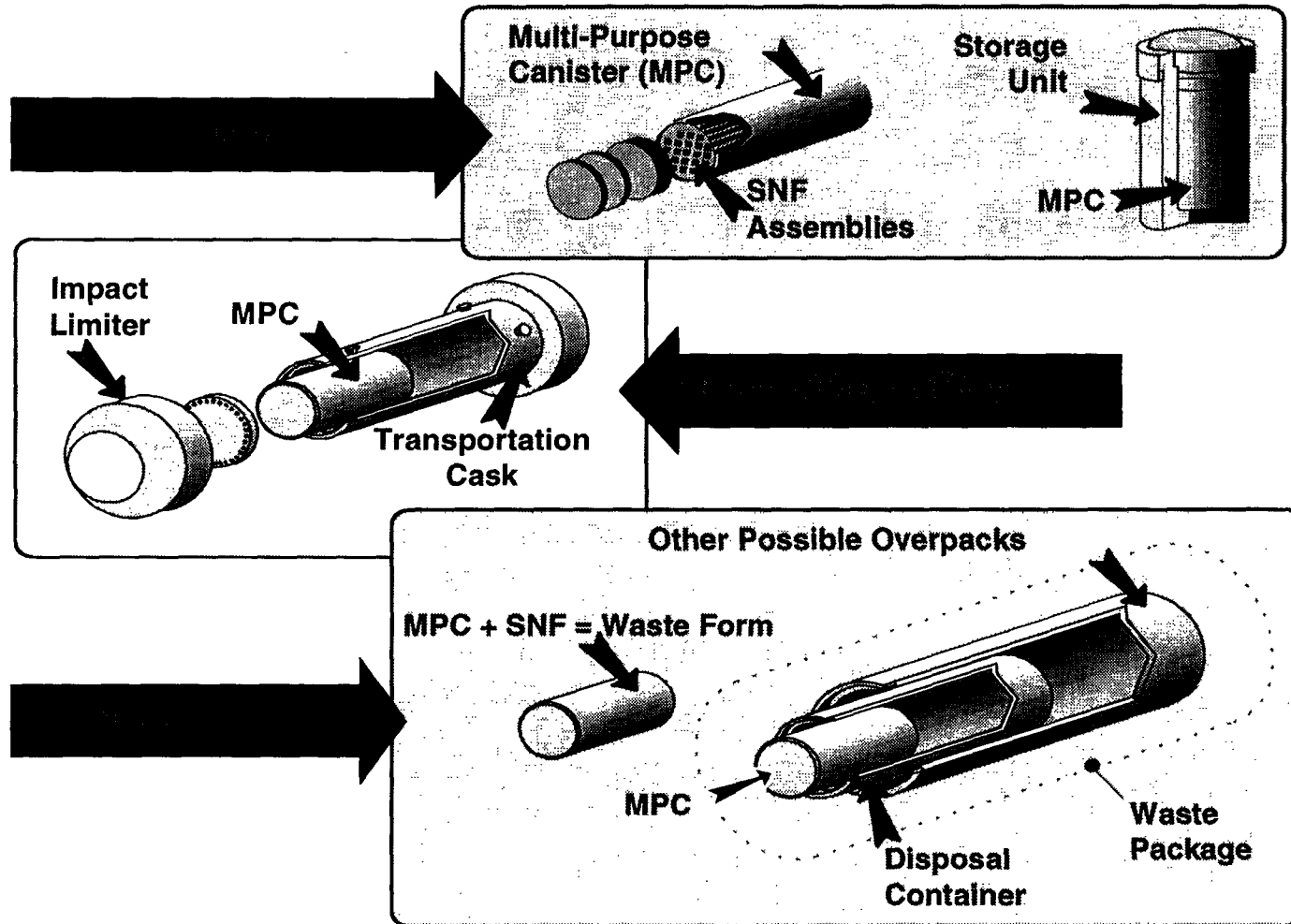


MPC Status

- **MPC certification**
 - **Background**
 - **Program approach**
 - **MPC procurement—phased approach**
 - **NRC-DOE MPC certification and schedule**
 - **NRC staff support**
 - **Part 60 design considerations**
- **Westinghouse proposed design**
 - **MPC contractor workscope**
 - **Proposed design**



MPC System



PC0673A



MPC—A Key Aspect of the Waste Acceptance, Storage, and Transportation Project*

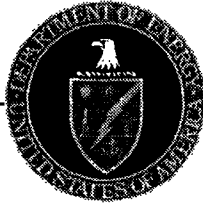
- **Ensure multi-purpose canisters are available in 1998 for at-reactor storage, waste acceptance, transport, and ultimately disposal**
- **Contract awarded for design of multi-purpose canister subsystem and preparation of Safety Analysis Reports (Phase 1)—April 21, 1995**

***Program Plan, Volume III—December 1994**



MPC Procurement Phases

- **Phase 1—SAR design**
- **Phase 2—Certification and prototypes**
- **Phase 3—Fabrication**



MPC Certification

- **Meet requirements of 10 CFR Part 71 (Packaging and Transport of Radioactive Material) and 10 CFR Part 72 (Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste)**
- **Vendor expertise in Parts 71 and 72**
- **Be compatible with requirements of 10 CFR Part 60 (Disposal of High-Level Radioactive Waste in Geologic Repositories)**



NRC-DOE MPC Certification Schedule

ID	TASK NAME	1996												1997												1998											
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	Pre-acceptance Review 1/96	◇																																			
2	Review Cycles 4/96-12/97			▽																																	
3	NRC Round 1 Review																																				
4	DOE Responds to R1 Questions																																				
5	NRC Round 2 Review																																				
6	DOE Responds to R2 Questions																																				
7	NRC Final Review																																				
8	NRC Issues Part 71, 72 SER's																																				
9	Fabrication Exemption (If Requested)																																				
10	NRC Rulemaking 8/97 - 10/98																																				



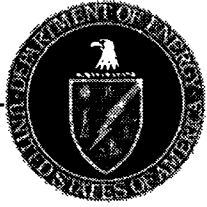
NRC Staff Support

- **Established Spent Fuel Program Office**
 - **Integrated review of proposed MPC design by Part 71 and Part 72 staff**
- **Established Burnup Credit Task Force**
 - **Integrated review of Burnup Credit and other issues by Part 60, Part 71, and Part 72 staff**



NRC Staff Support

- **Provided guidance on scope and content for addressing MPC Part 60 design considerations in the repository pre-licensing period**
 - **Interaction with waste package**
 - **Interaction with natural and engineered systems**
 - **Interaction with repository operations**



MPC Specification— Repository Requirements

- **Material requirements**
 - **Shell and closure lids—low carbon stainless steel**
 - **Shield plug—no lead**
 - **Basket—low carbon stainless steel or high nickel alloy**
- **Thermal requirements**
 - **Maintain clad temperature of 350° with total heat load of 14.2 KW and surface temperature of 225°**



MPC Specification— Repository Requirements

- **Long-term criticality control requirements**
 - **Maintain subcriticality with collapsed flux traps**
 - **Credit for only 80% of as-manufactured ^{10}B**
- **Filler material requirements**
 - **Capability to remove and reseal lids**