

## WHAT IS THE ROLE OF THE MULTI-PURPOSE CANISTER IN THE WASTE MANAGEMENT SYSTEM?

Answer the following questions as you read the lesson *The Role of the Multi-Purpose Canister in the Waste Management System*.

1. What is a multi-purpose canister (MPC)?

*(A large, metal container shaped like a cylinder and designed to hold spent fuel from nuclear powerplants.)*

2. How is spent fuel presently stored at reactor sites?

*(Underwater in specially designed spent fuel pools. Where pools are full, utilities use some form of dry storage.)*

3. How would an MPC be used in DOE's waste-management system?

*(With appropriate outer containers or overpacks, the MPC would be used for dry storage at reactor sites or a temporary storage facility, for transport, and for final disposal of spent fuel.)*

4. List at least two advantages and/or disadvantages the MPC offers to spent fuel management.

*(The MPC would minimize the handling of spent fuel assemblies. It would also ensure compatibility with dry-storage systems used at reactor sites and at DOE facilities.)*

5. The MPC is designed to be shipped by rail from the different sites where spent fuel is stored. How does the waste management system ensure that it will satisfy those needs?

*(Two canister sizes have been proposed to meet the special requirements of the utilities where spent fuel is stored. Provisions are included in the conceptual design for some utilities to ship uncanistered fuel in transportation casks to an area where it could be re-packaged in an MPC.)*

6. How might the MPC be handled at a geologic repository?

*(At a geologic repository, the MPC would be unloaded from the transportation cask and placed in a disposal overpack. The canister and its overpack would then be placed on the floor of an underground disposal room.)*

7. The Nuclear Regulatory Commission (NRC) regulations require that the MPC design meet specific standards. List as many NRC requirements as you can.

*(The MPC must be capable of withstanding hypothetical accident scenarios. The temperature of the fuel inside the MPC must not exceed 340 °C (644 °F). Neutrons must be absorbed inside the canister to avoid criticality of the remaining fissionable fuel.)*

8. If DOE decides to use the MPC, when is it projected to be available for storage at a reactor site? When is the transportation cask projected to be ready?

*(The first canister is projected to be available for possible use at a reactor site in Fall 1998.*

*The transportation cask is projected to be ready by January 2000.)*

9. The MPC will cost more than other storage canister designs. How would additional costs be offset?

*(Because of standardization, savings in other parts of the waste management system will be realized. Fewer employees would be needed to manage spent fuel at different stages of the system.)*

10. Who are the stakeholders in a decision to use the MPC? What are the concerns of each?

*(utilities – lower costs of storage; less exposure to workers*

*public interest groups – costs, environmental safety protection, public health and safety*

*equipment manufacturers – increased workload, new equipment requirements*

*industry and utility organizations – costs, employee safety*

*regulators – costs, safety)*