

Used Nuclear Fuel Integrated Management

**Proposed Geological Repository at Yucca Mountain, NV
RIC 2007
U.S. Nuclear Regulatory Commission**

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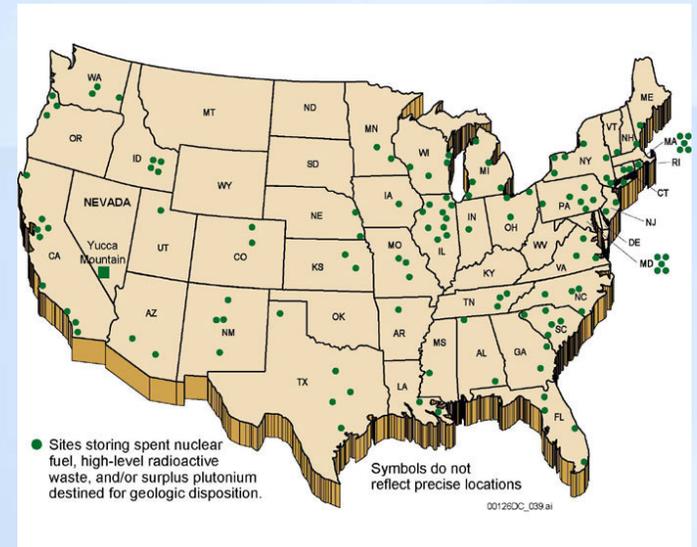
**Steven P. Kraft
Senior Director
Used Fuel Management
Nuclear Energy Institute**

Nuclear Industry Supports

- **Disposal of used fuel and/or by-products in repository**
- **DOE meeting obligation to remove used fuel from nuclear plant sites**
- **R&D and demonstration to close the nuclear fuel cycle**
- **Interim storage of used fuel ideally at fuel recycling sites.**
- **Reforming Nuclear Waste Fund budget**

Used Nuclear Fuel Storage

- **Current used fuel inventory**
 - Approximately 55,600 MTU
- **Current dry storage inventory**
 - 9,600 MTU
 - 875 casks/canisters loaded
 - At 36 sites
- **Future dry storage inventory by 2017**
 - Estimating 22,300 MTU
 - 2,000 casks/canisters loaded
 - At 66 sites for 108 plants



Used Fuel Management: Where We Stand Today

- **Yucca Mountain site judged suitable in 2002**
 - Project must continue
- **Worldwide expansion of nuclear energy prompting renewed interest in “closing” the nuclear fuel cycle:**
 - recycling used nuclear fuel
 - advanced used fuel reprocessing technologies
 - developing new type of fuel from reprocessed product
 - new reactor designs able to consume fissile materials recovered from used fuel
- **Nuclear renaissance will require recycle**
 - Long-term timing consistent

Used Fuel Management: Strategic Direction

- **Integrated program with well-defined short-term, medium-term and long-term goals**
- **Long-term goal has not changed: Even if we “close” the nuclear fuel cycle, still have waste forms that require deep geologic isolation**
- **Now have better understanding of ...**
 - intermediate steps necessary to reach long-term goal, and
 - time necessary to take those intermediate steps.
- **Maintain dry-cask storage for current plant and prepare for transportation**

Short-Term Goals

- **Ensure used fuel issues do not become impediment to new nuclear plant construction:**
 - “waste confidence”
 - New standard contract
 - Progress toward integrated plan for used fuel management
- **Begin well-defined program for technologies necessary to “close” nuclear fuel cycle**
- **Identify and develop potential voluntary sites for long-term interim storage**
 - co-located with advanced reprocessing facilities
 - used fuel is feedstock for reprocessing facilities
- **Start process of licensing the Yucca Mountain facility**

Medium-Term Goals

- **U.S. government take title to and move used fuel to fuel treatment centers**
- **Begin deployment and demonstration program for technologies necessary to “close” nuclear fuel cycle**
 - **determine type of waste by-product requiring permanent disposal (used fuel, actinides and fission products, fission products?)**
- **Continue licensing process for Yucca Mountain facility, moving toward finalizing design and construction**

Long-Term Goals

- **Continue consolidation of used fuel at fuel treatment centers to:**
 - **Store used nuclear fuel to support fuel treatment/reprocessing centers**
 - **Reprocess used fuel**
 - **Fabricate fresh fuel**
 - **Ship waste by-products to Yucca Mountain**
- **Build and operate Yucca Mountain disposal facility**

Yucca Mountain

- **Repository progress important in any fuel cycle.**
- **The 2008 Yucca Mountain license application is an important sign of progress.**
- **The application/license will be amended as future waste forms are developed.**
- **Standardized canisters are an important priority.**
 - Support 2008 application
 - “Legacy fuel” direct disposal and assurances for all fuel
 - Facilitate DOE performance on contract obligation
 - Standardization supports system integration with fuel processing facilities

Benefits of An Integrated, Phased Program

- **Developing advanced technologies to “close” nuclear fuel cycle provides needed flexibility**
- **Sites for these facilities logical candidates for interim storage**
 - **Allows DOE to meet statutory obligation to remove used fuel from operating plants**
 - **Sustains public, political, industry confidence in used fuel management program**
- **Time required for research and development removes schedule pressure on Yucca Mountain facility**