Progress of the United States Foreign Research Reactor Spent Nuclear Fuel Acceptance Program

Reduced Enrichment for Research and Test Reactors Conference 2002
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November 4-8, 2002
Presentation Outline

- Review Program Policy
- Receipt program accomplishments to date
- Shipment implementation issues
- Recent changes in the Program
- Current Issues/Planned Shipments
- Summary
- Program points-of-contact
- Questions
U.S. Research Reactor Spent Nuclear Fuel Acceptance Policy

★ Research reactor SNF containing uranium enriched in the U.S. will be accepted from 41 countries identified in the EIS and managed in the U.S.

– About 20 metric tons (5 tons of HEU)
– Includes aluminum-based and TRIGA research reactor spent fuel and target material
– Response to 2000 cable indicates participation estimates will be considerably lower

★ 10-year acceptance policy (May 13, 1996 to May 13, 2006)

– Provides time for reactor operators to develop own solutions
– Fuel irradiated during the 10-year window will be accepted over a 13-year period
U.S. Provided Enriched Uranium to 41 Countries
Reason for the Policy

★ Reduce the threat of nuclear weapons proliferation while enjoying the benefits of nuclear technology.

★ Reduce, and eventually eliminate, high enriched uranium from worldwide commerce.

★ Allow time for the countries with spent fuel to resolve their own path for disposition of this material.
Receipt Program
Accomplishments to Date

★ Sixth year of program implementation
★ 25 shipments completed
  – Spent nuclear fuel shipped from Asia, South America, Australia, North America, and Europe
  – 5,537 spent fuel assemblies from 27 countries have been shipped to U.S.
★ 131 casks/4,576 assemblies to SRS, 12 casks/961 assemblies to INEEL
★ Based on revised anticipated receipts
  – MTR is 54% complete
  – TRIGA is 68% complete
Spent Nuclear Fuel Shipments to Date
Recent Accomplishments

★ September 2001-2002 saw 4 shipments safely completed
★ All 4 were MTR shipments to SRS; no TRIGA receipts during this period
★ Expecting a TRIGA shipment in Spring ‘03 and these generally bring a certain level of interest from the States
★ Approximately 1 cross-country shipment per year is expected to occur
Shipment Implementation Issues

★ Cask certifications
- U.S. process very structured
- Appendix A submittals: as early as possible
- Early identification/selection of cask

★ Economic, timely shipments
- Becoming more difficult to schedule
- Projected increase in shipments at the end of the program
Implementation Issues (Cont’d)

★ General schedule
  – Summer shipment from Europe
  – Early fall shipment from Japan via Europe (with European casks if desired)
  – One additional shipment annually other than Europe (from an other than high income country)

★ Extensive transportation and institutional planning in the U.S. required even before September 11 attacks
Implementation Issues: Package Reviews

- Licensing of casks and related timing of applications are critically important.
- New safeguards and preventive measures put in place after September 11th are taxing all federal resources (including NRC).
- More time for review is always appreciated, but package reviews, particularly those involving new or changed configurations, will require full review time to avoid possible delays.
Review Schedule reminders

★ New designs: 7 month staff review; 3 month response
★ Moderately Complex Amendments: 5 month staff review; 2 month response
★ (Minor) Amendments: 3 month staff review
Advances Since Start of Program

- July 2000 modification to the 1996 Record of Decision, increasing maximum number of casks on a single vessel from 8 to 16
- Greater availability of casks enabled increase
- Change allows for fewer transits and reduced costs
- First use of policy change: October 2001 shipment included 12 casks, total of 438 elements
Current Issues: Security

★ September 11 attacks radically changed how security concerns are identified and addressed

★ DOE has been working with international, federal, State, Tribal, and local authorities to re-examine shipment procedures and requirements

★ Temporary halts of radioactive materials shipments occurred twice after the 2001 terrorist attacks

★ Threat assessments for shipments have been conducted by federal and state law enforcement

★ Closer international coordination (overlap in agency jurisdiction to avoid gaps)
Security (Cont’d)

★ Historically, SNF shipments had not been considered attractive targets for terrorist attack
★ However, fuel shipments are a matter of high concern because of risk perception as compared to other hazardous materials
★ Inspection, escort, and other law enforcement procedures also tax law enforcement and emergency response assets that could be deployed elsewhere
Current Issues: Yucca Mountain

★ Progress on developing a geologic repository for spent fuel - Yucca Mountain - is moving forward
★ Transportation is emerging as a key area of public interest and debate
★ Controversy surrounds future shipments to a repository, but current shipments are becoming more visible and prone to criticism by media/antinuclear organizations
★ FRR SNF Acceptance Program monitors these situations closely
★ And other countries are watching closely due to possible interest in regional repositories (Canada, Russia, Latin American countries)
Shipments Planned

September 2002 - September 2003 (tentative)
Summary

★ FRR SNF Acceptance Program is actively working with research reactors to accept eligible material before the Acceptance Policy proper expires in 2006

★ Reactors/governments wishing to participate should contact us immediately if they have not done so already

★ Program operations are changing to adapt to new challenges

★ We continue to promote the importance of this Program to senior management in the Department of Energy
Program Points-of-Contact

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