Foreign Research Reactor Spent Nuclear Fuel Acceptance Program: Current Progress

Research Reactor Fuel Management Conference
Sofia, Bulgaria
May 1 -3, 2006

Chuck Messick, US DOE-NNSA-SRS

DOE Continues to Receive FRR SNF Shipments

- 33 shipments completed
- 6,851 spent fuel assemblies, from 27 countries, have been accepted to date
- 6 cross-country shipments completed, one west coast shipment completed
- 163 casks/5,638 assemblies to SRS;
  15 casks/1,213 rods to INL

Shipments to Date

6 shipments to INL

1 South Korea
2 Romania, Slovenia, Italy and Germany
3 United Kingdom
4 Germany
5 Japan
6 Indonesia

26 shipments to SRS

1 Sweden, Switzerland, Germany, Colombia, and Chile
.2 Canada
3 Germany, Switzerland, Spain and Italy
4 Japan, Sweden, Germany, and Spain
5 Denmark, Italy, Germany, Sweden, and Greece
6 Australia
7 Venezuela, Uruguay, Japan, Sweden, and Spain
8 Germany, Denmark, and Sweden
9 Thailand, Philippines, Indonesia, and Taiwan
10 Portugal and Denmark
11 Japan (via Europe)
12 Brazil and Venezuela
13 Canada
14 Italy and Germany
15 Japan
16 Chile and Argentina
17 Austria, Germany, and The Netherlands
18 Germany, Sweden, and Japan
19 Denmark
20 Denmark, Germany, and Sweden
21 & 22 Japan
23 Indonesia
24. Germany
25. Japan
26 Sweden and The Netherlands
27. Austria and Greece

FRR SNF Acceptance Program

- Goal: to recover nuclear materials which could otherwise be used in weapons

- Strategy: play a key role in the civilian nuclear fuel cycle--high enriched uranium is potentially weapons-usable; get this material out of the cycle

- Implementation: U.S. accepts eligible spent fuel. Many reactors can convert directly to low enriched uranium fuel (not weapons-usable). Research reactors are used for medical, agricultural, and industrial applications.

Reasons for the Policy

- Reduce the threat of nuclear weapons proliferation while enjoying the benefits of nuclear technology.
- Reduce, and eventually eliminate, high enriched uranium (HEU) from worldwide commerce.
- Allow time for the countries with spent fuel (both high and low enriched) to resolve their own disposition.

FRR Program Changes

- Program changes to better meet Goals, Strategy, Implementation Objectives
- The FRR SNF Acceptance Program transferred responsibility to NNSA's Office of Global Threat Reduction on November 11, 2004
- Detailed division of responsibilities between DOE-Environmental Management and NNSA are established

FRR Program Extension

- The FRR SNF Acceptance Program was extended November 22, 2004 in memorandum signed by The US Secretary of Energy, Spenser Abraham
- US Federal Register Notice issued Vol 69/ No 230, Pages 69901 – 69903, dated December 1, 2004

FRR SNF Acceptance Policy - Extension

- Now 20-year acceptance policy (May 13, 1996 to May 12, 2016)
  - To provide time for reactor operators to develop own solutions
  - To provide time for conversion to usable uranium-silicide LEU fuels or other with a known disposition path while development of replacement low-enriched fuels continues
  - Fuel irradiated during the 20-year window will be accepted over a 23-year period (May 12, 2019)
- Allows receipt of some LEU fuels of the Australian Replacement Research Reactor (OPAL)

FRR SNF Acceptance Policy – Extension (Cont'd)

- Opens new opportunities for continued operations for many more years
- Extension is not intended to allow continued operation on HEU in lieu of conversion to acceptable LEU fuels
- Requests from FRRs to extend the use of HEU after May 2006 will be carefully considered
- Opens new opportunities for some reactor operators that were not originally planning to participate who
  - posses eligible material, and
  - planned operations support the extended window

Fee Policy Considerations

- FRR SNF Acceptance Fee has not changed since the program inception
- Doe evaluation has concluded that change to the Fee structure will not have a desirable effect on program participation

Conclusion

- We are seeking ways to include eligible FRRs who have not yet participated in the program
- We value the relationship established with the Reactor Operators and other Stakeholders
- We want your feedback! Contact us:
- Chuck Messick, DOE-SR, (803) 725-9494, email: charles.messick@srs.gov
- Kasia Mendelsohn, DOE-NNSA, (202) 586-0275, email: kasia.mendelsohn@nnsa.doe.gov