



NNSA
National Nuclear Security Administration

MB
MATERIAL MANAGEMENT
AND MINIMIZATION
CONVERT, REMOVE, DISPOSE



National Nuclear Security
Administration (NNSA)

Defense Nuclear
Nonproliferation (DNN)

NRC Commission Meeting on the Research and Test Reactors Regulatory Program

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Convert Overview



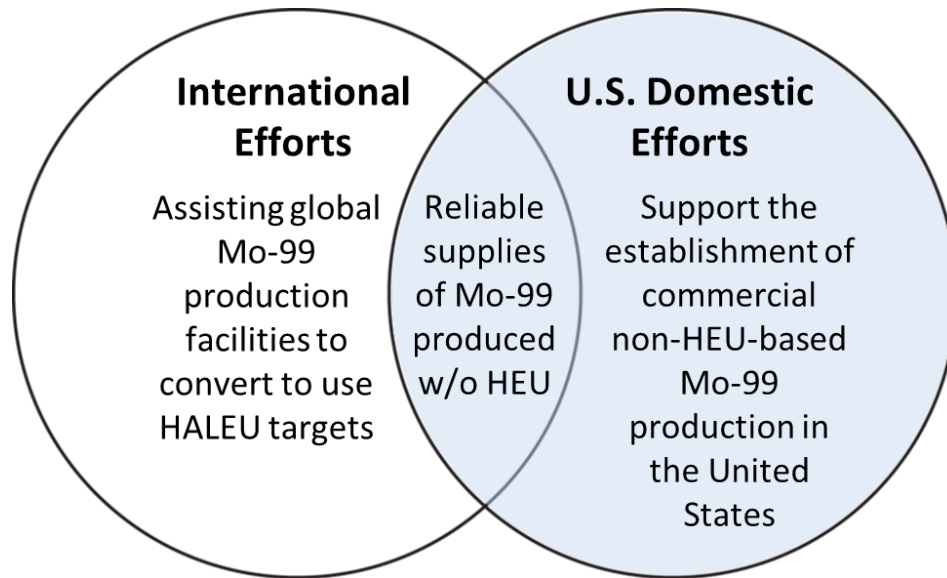
Objective: Modify/convert facilities to eliminate the need for, and production of, weapons-usable materials in civilian applications, while maintaining critical mission performance

Program approaches:

- Research reactor conversion from HEU to HALEU fuel
- Qualification and fabrication of high-density HALEU fuels
- Sustainable supply of HALEU for domestic and international partners for research reactors and isotope production
- Production of non-HEU-based Mo-99 in the United States
- Proliferation resistance in new reactor facility design and deployment



Mo-99 Activities



- **Molybdenum-99 (Mo-99):**

- Vital medical isotope used in over 40,000 U.S. diagnostic procedures per day
- U.S. historically relied on imported Mo-99, which was produced using HEU

- **International Efforts:**

- All major global Mo-99 producers now use HALEU
- U.S. has ended exports of HEU for medical isotope production

- **U.S. Domestic Efforts:**

- Significant progress made in establishing production infrastructure
- Challenges with private financing and commercialization
- NNSA is continuing to provide financial, technical, uranium leasing, and waste take-back support to U.S. companies

Reactor Conversions



Significant progress in the conversion and/or verification of the shutdown of research reactors and medical isotope production facilities worldwide from HEU to HALEU

109 facilities no longer use HEU fuel or targets

International Reactor Conversions

- Engagement underway with multiple international partners
- As conversions continue, use and exports of HALEU are expected to steadily increase

Domestic Reactor Conversions

- NNSA is working toward converting the six high performance research reactors to HALEU fuel
- Comprehensive series of irradiations over the next 4 years for the final demonstration of a new uranium-molybdenum monolithic (U-10Mo) fuel
- MOU with the NRC to help facilitate cooperation on qualifying the new fuel and approval of license