



# Fact Sheet

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## NNSA Works to Minimize the use of HEU in Medical Isotope Production

As part of its nuclear nonproliferation mission, the National Nuclear Security Administration (NNSA) is working to develop a sustainable means of producing life-saving medical isotopes, such as molybdenum-99 (Mo-99), without using highly enriched uranium (HEU). The goal is to develop a reliable Mo-99 commercial supply network that avoids a single point-of-failure and does not use HEU.

This program is part of the effort by NNSA's Global Threat Reduction Initiative (GTRI) to develop and implement technologies to minimize and, to the extent possible, eliminate the civilian use of HEU, including in research reactors that produce medical isotopes.

After more than six decades of cutting-edge nuclear science, technology and engineering, NNSA's nuclear security enterprise is uniquely equipped to identify means of producing such isotopes in a way that is consistent with global efforts to prevent the proliferation of nuclear weapons. To accomplish this:

- GTRI makes technical expertise available, on a non-proprietary basis, to all global producers to assist with converting their Mo-99 production processes to use low enriched uranium (LEU).
- GTRI develops alternative LEU-based processes that increase the Mo-99 extraction efficiency and reduce the waste volumes generated, in order to facilitate the replacement of current HEU-based technologies.
- GTRI has long-standing relationships with current and potential Mo-99 producers through its development of LEU-based Mo-99 technology and cooperation with research reactor facilities converting to LEU fuel.

GTRI's efforts were endorsed by a January 2009 National Academy of Sciences study, which concluded that it is technically and economically feasible to produce Mo-99 without the use of HEU.

NNSA is also working to develop a secure, reliable, and diversified Mo-99 commercial production capability in the U.S. that does not utilize HEU, an effort that requires strong cooperation among government and industry. It is imperative to ensure that this critical medical isotope is readily available for the American medical community because the United States currently imports 100 percent of its Mo-99 supply from aging reactors abroad. To further this critical effort, NNSA is:

- Developing a long-term Mo-99 production capability based on the dual objectives of developing a reliable Mo-99 supply network that avoids a single point-of-failure and minimizing the use of HEU worldwide.
- Supporting the establishment of a commercial Mo-99 production capability within the United States by demonstrating the viability of non-HEU based technologies for large-scale production, including for example: LEU targets, LEU solution reactors, neutron capture and accelerators.
- Signing cooperative agreements with commercial partners. Agreements have been signed with Babcock and Wilcox and with GE Hitachi,
- The cooperative agreements require industry partners and NNSA to share costs equally to fund the projects.
- The projects utilize resources and the wide-ranging expertise from the U.S. national laboratories and U.S. commercial entities.

January 2010