

Nuclear Material Safety

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Premise

- A nuclear-related accident in either the U.S or Russia would jeopardize efforts to reduce the global danger from nuclear weapons materials.
 - example: progress toward disposition of excess weapons plutonium
 - nuclear reactors
 - other facilities in the nuclear fuel cycle

Mission

- Further enhance the level of safety in relevant Minatom facilities, and reduce the likelihood of accidents
 - consistent with findings of the NAS, the policies of the P-8, and the fissile materials disposition and nonproliferation policies of the US
 - focus on fissile materials associated with defense nuclear fuel cycle facilities

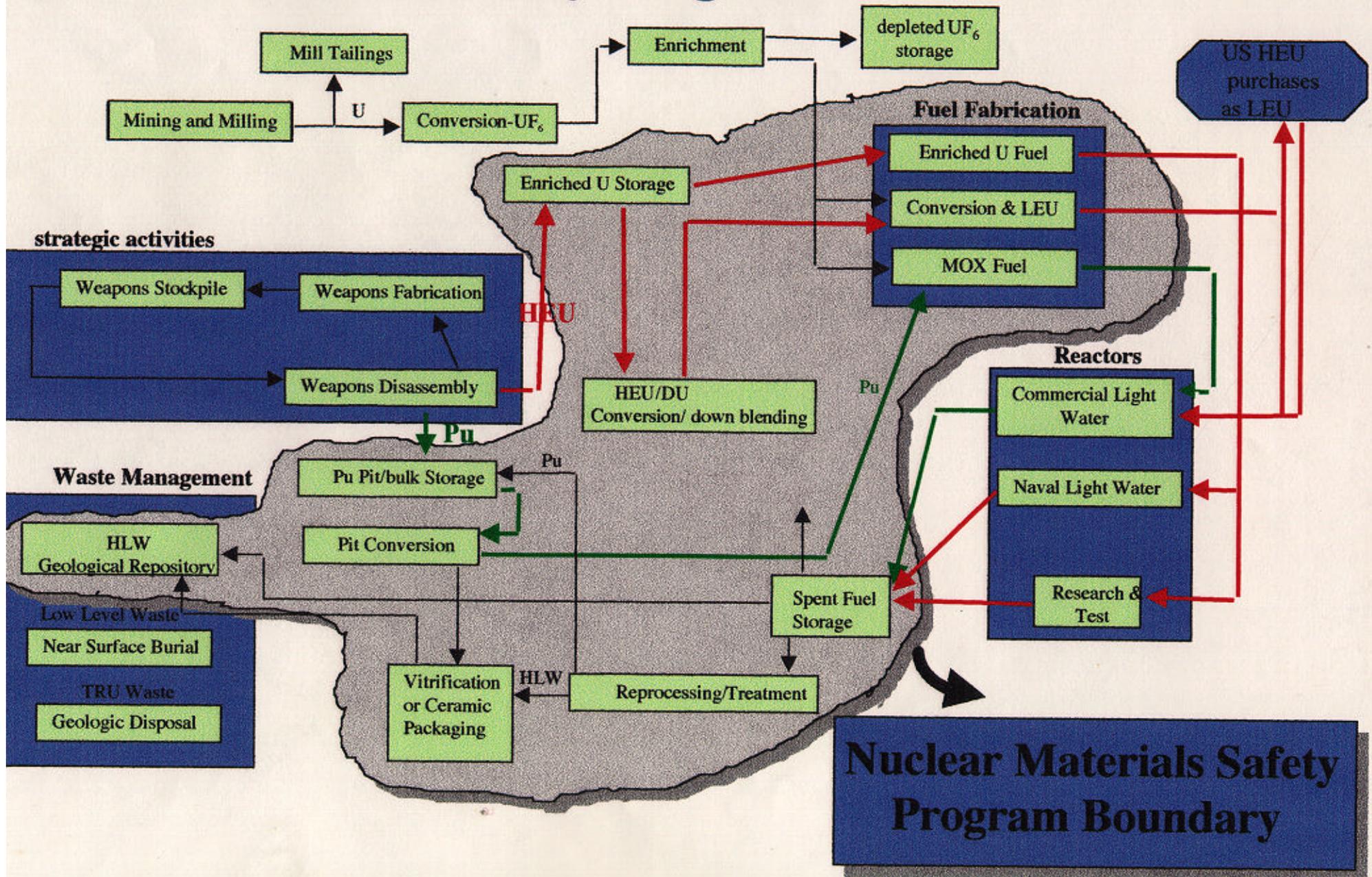
Vision

- **Within a decade**
 - **develop strong nuclear materials safety interactions between DOE and Minatom**
 - **implement modern internationally accepted safety practices in relevant Minatom facilities**
 - **incorporate safety as a fundamental component in academic programs in Russian institutes of higher education**
 - **inculcate a safety culture into all facets of the Russian nuclear fuel cycle**

Strategy

- Integrated interactions between DOE and Minatom
- No duplication of other key bilateral efforts
 - fissile materials disposition
 - transparency

Figure 1 : Nuclear Materials Flowsheet for the Nuclear Materials Safety Program



Components

- Lab-to-Lab Program
 - technical projects and training initiatives
- University component
 - research and curriculum initiatives

Government

- DOE
 - Office of International Nuclear Safety and Cooperation (T. Lash)
- Minatom
 - Department of Safety, Ecology and Emergency Situations (V. A. Gubanov)

Lab-to-Lab Leads

- US
 - LLNL (L.J. Jardine)
- Russia
 - V.G. Khlopin Radium Institute, in St. Petersburg (L.N. Lazerev, M.M Moshkov)

Participating Universities

- US
 - **Amarillo National Research Center for Plutonium (K.L. Peddicord)**
 - **Other US universities with strong academic programs in nuclear engineering**
- Russia
 - **Moscow Engineering Physics Institute (E.F. Krutchkov, V.V. Bolyatko)**
 - **Up to five other participating institutions**

Technical Goals

- Operational safety
- Safety evaluations
- Enhanced safety systems
- Develop safety culture

Endpoints

- Lab-to-Lab
 - relevant Minatom facilities meet internationally accepted criteria (e.g., ICRP, ISO 9000)
- University
 - graduates from Russian technical universities under new curricula incorporating nuclear materials safety as a fundamental component

History

- Roots in bilateral studies of the April 6, 1993 radiochemical incident at Tomsk-7
- NATO workshop in Amarillo, March 1997
 - *Nuclear Materials Safety Management*, Kluwer, 1998
- Follow-on NATO workshop in St. Petersburg, June 1998.