

**Key Functions and Activities for the Office of Nuclear Materials Disposition
Within the Environmental Management Program - 10586**

Edgardo D. DeLeon and Hitesh Nigam
Department of Energy, Washington, DC 20585

ABSTRACT

The Office of Nuclear Materials Disposition (EM-33), under the new reorganization reports to the Director of “Technology Innovation and Development”. The mission and function for EM-33 remains the same under the realignment, which is to manage and dispose of surplus nuclear materials. The purpose of this presentation is to discuss the functions of EM-33 as it relates to management of surplus plutonium, spent nuclear fuel (SNF), highly enriched uranium (HEU), and other surplus materials. The presentation will focus on quantities of nuclear material requiring disposition; past, present, and future strategies for disposition; need to work closely with other Organizations, such as National Nuclear Security Administration (NNSA); as well as key issues and proposed resolutions.

MISSION

The EM-33 is responsible for managing and disposing of surplus nuclear material under the purview of the Environmental Management (EM) Program. The Office performs analysis and develops and recommends integrated program strategies for management and disposition of surplus plutonium, HEU, SNF, and other surplus materials for EM. The Office is also responsible for developing integrated management and disposition strategy documents; conducting trade studies and performing life-cycle alternatives analysis; providing out-year budget integration and program planning support; and interfacing with other DOE program offices to assure integrated planning, coordination, and timely resolution of cross-cutting issues involving surplus material.

THE FUNCTIONS OF EM-33

- Perform cross-cutting analyses to determine the optimal utilization of resources for management and disposition of plutonium, HEU, special nuclear material (SNM), SNF, and other surplus materials.
- Coordinate EM’s surplus plutonium disposition activities with NNSA, who has the lead for meeting the “*September 2000 Agreement Between the Government of the United States of America and the Government of the Russian Federation Concerning the Management and Disposition of Plutonium Designated as No Longer Required for Defense Purposes and Related Cooperation* (referred to as the Plutonium Management and Disposition Agreement or PMDA)”.

[See Figure 1 for detailed breakdown of Excess Plutonium and planned disposition path]

- Ensure EM interests are represented by assisting and coordinating with NNSA in negotiations with foreign governments for future receipts of the Foreign Research Reactor (FRR) spent nuclear fuel at EM facilities, consistent with the Department's commitments on the Foreign Research Reactor return program and Global Threat Reduction Initiative. Work closely with the State Department and foreign Embassies in complying with all international requirements and sensitivities of foreign nations, keeping with EM's priorities. Participate in inspection/quality assurance oversight of FRR SNF.

[See Figure 2 for the location and quantities of EM SNF]

- Work closely with International Atomic Energy Agency and national laboratories regarding technology development for the management of SNF and nuclear materials. Participate in international forum and collaborate with other countries on technology and best management practices for disposition of SNF and nuclear materials.
- Coordinate H-Canyon HEU downblending activities with NNSA, consistent with the January 2009 Agreement to provide low enriched uranium to Tennessee Valley Authority and for potential future modification to that agreement.

[See Figure 3 for the U.S. HEU Disposition Plan]

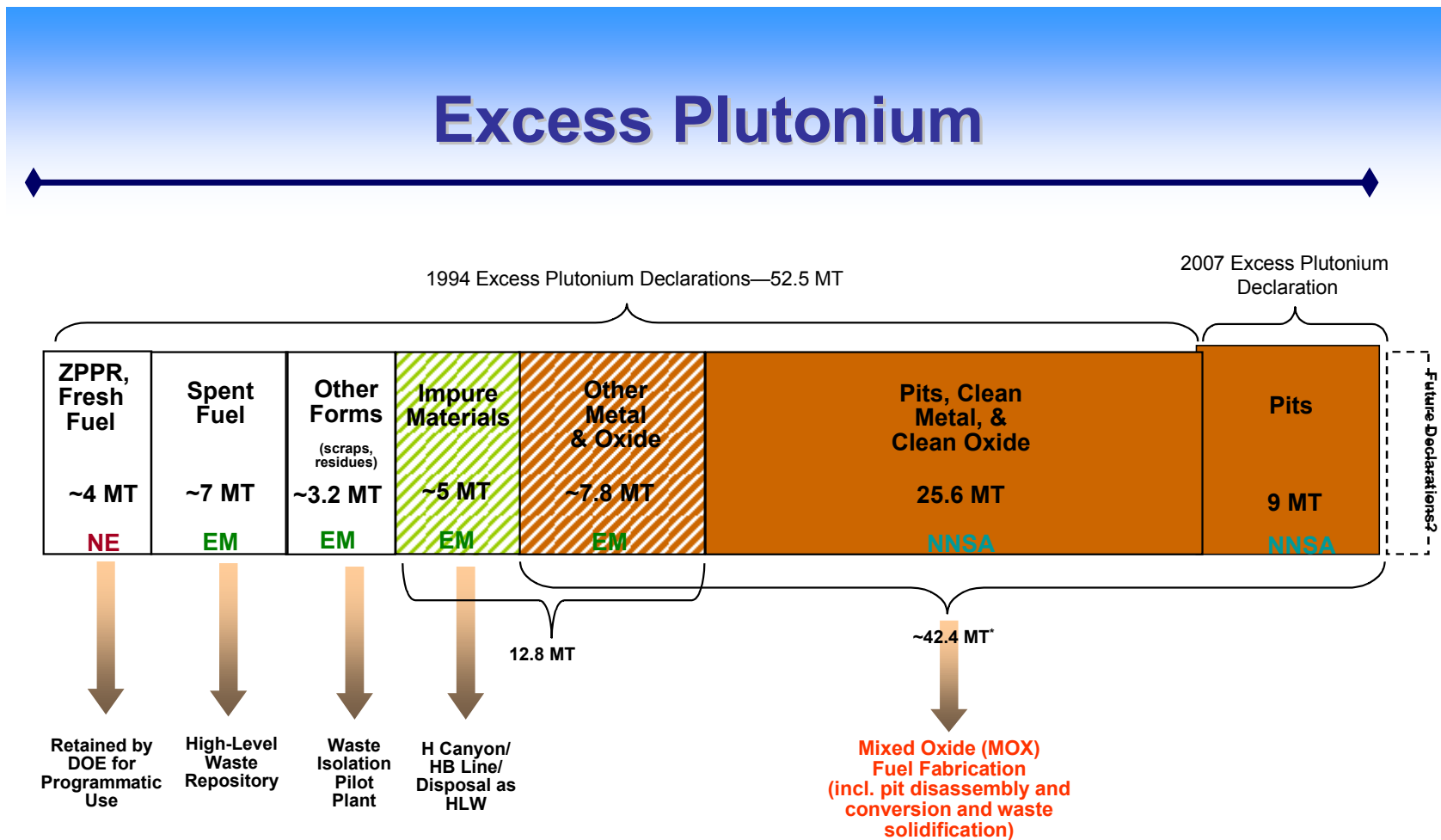
- Develops and coordinates integrated strategies, planning documents and guidance supported by life-cycle cost, scope and schedule for management and disposition of EM's inventory of SNM (such as Pu-239, HEU, and U-233), SNF, surplus nuclear materials (such as depleted uranium and Pu-238), and other non-waste materials.

[See Figure 4 for the Nuclear Materials Disposition Process at the Savannah River Site]

- Identifies disposition barriers and issues and recommends path forward to address these barriers and issues as well as complex-wide integration and optimization opportunities for SNM, SNF, and other excess materials.
- Oversees the National Spent Nuclear Fuel Program.
- Represents EM in Departmental forums related to SNM and SNF disposition and maintains the EM interface with the Office of Science, Nuclear Energy, Civilian Radioactive Waste Management (RW), Naval Reactors, and NNSA on matters related to SNM, SNF and other excess materials.
- Represents EM in Departmental nuclear materials coordination and integration activities being conducted by the Office of Nuclear Materials Integration (NA-58).

- Leads and coordinates the preparation of reports and other documents as may be required by Congress or other governmental elements related to its areas of responsibility.
- Provides EM Headquarters coordination and oversight of SNM, SNF, and other excess materials activities at EM sites.
- Leads ad hoc studies as required to support long-range program management, strategic planning and disposition decisions for SNM, SNF, and other surplus material.

FIGURE 1



* 34 MT of this plutonium will be part of the U.S.-Russian Plutonium Management and Disposition Agreement. The use of the MOX Fuel disposition path for greater than 34 MT of plutonium is contingent on additional NEPA analysis and NRC licensing review.

FIGURE 2

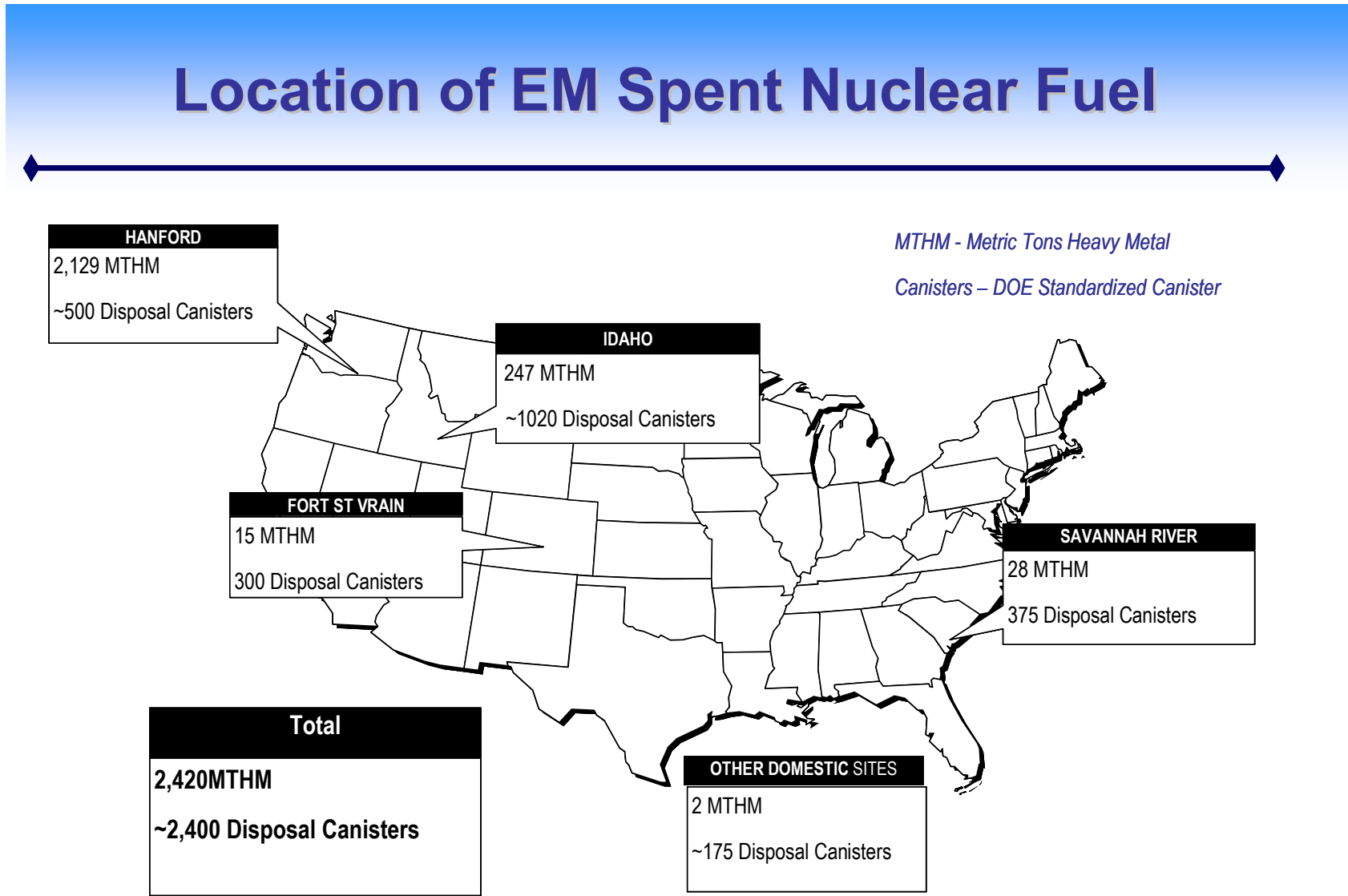
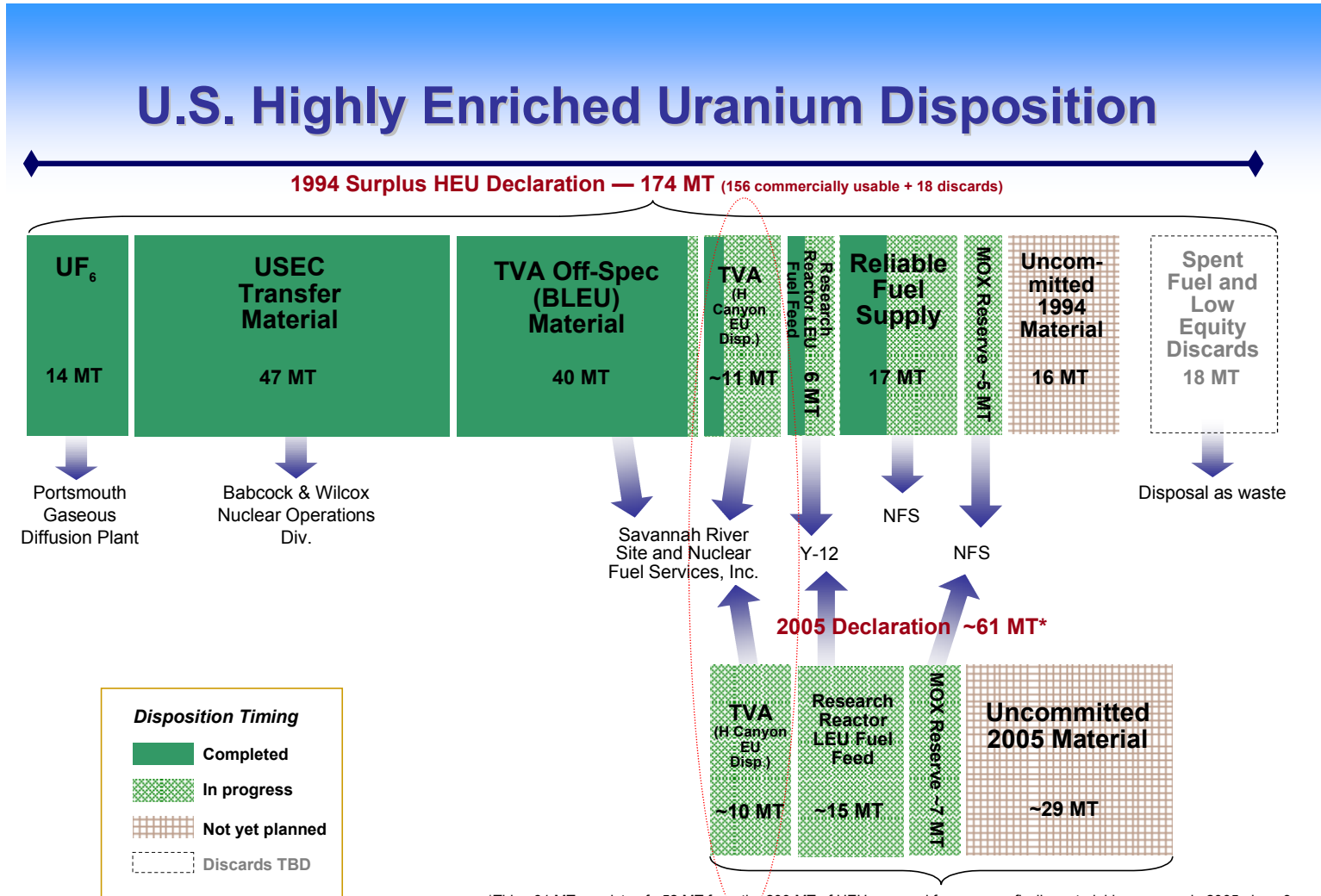


FIGURE 3



*This ~61 MT consists of ~52 MT from the 200 MT of HEU removed from use as fissile material in weapons in 2005 plus ~9 MT of irradiated fuel returned under the Global Threat Reduction Initiative. The ~52 MT includes 20 MT designated for down-blending plus an estimated 32 MT expected to be rejected for use from the 160 MT allocated to Naval Reactors.

FIGURE 4

