

U.S. Surplus Highly Enriched Uranium Disposition Program Overview

Supplement Analysis for the Disposition of Surplus Highly Enriched Uranium

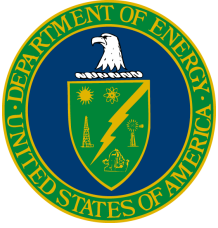
Dean Tousley

Director, Program Support Division
Office of Fissile Materials Disposition
National Nuclear Security Administration

April 2, 2008

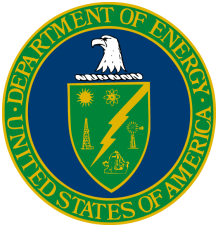
Enclosure 4





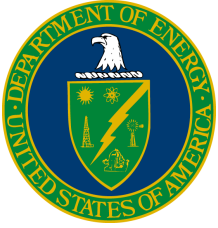
HEU Disposition Benefits

- The U.S. surplus HEU disposition program has eliminated approximately 2,000 weapons worth of unneeded nuclear material to date.
- This important national security program makes HEU unusable for weapons and disposes of it in a safe, secure and environmentally acceptable manner.
- On-schedule and approaching 50% complete for current scope (108 out of 217 MT).
- Successfully reducing holdings of HEU throughout the Department of Energy Complex.
- Helping reduce civil use of HEU (in research reactors) worldwide.



HEU Disposition Projects

- USEC 14 Metric Tons (MT) UF₆
 - USEC 50 MT HEU Project
 - Tennessee Valley Authority (TVA) 40 MT Off-Specification HEU
 - Research Reactor Low-Enriched Uranium (LEU) Fuel — 10 MT HEU
 - Reliable Fuel Supply — 17 MT HEU
- } completed

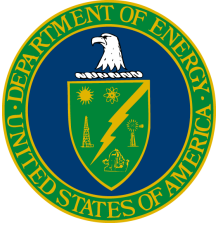


NFS Role: TVA Project

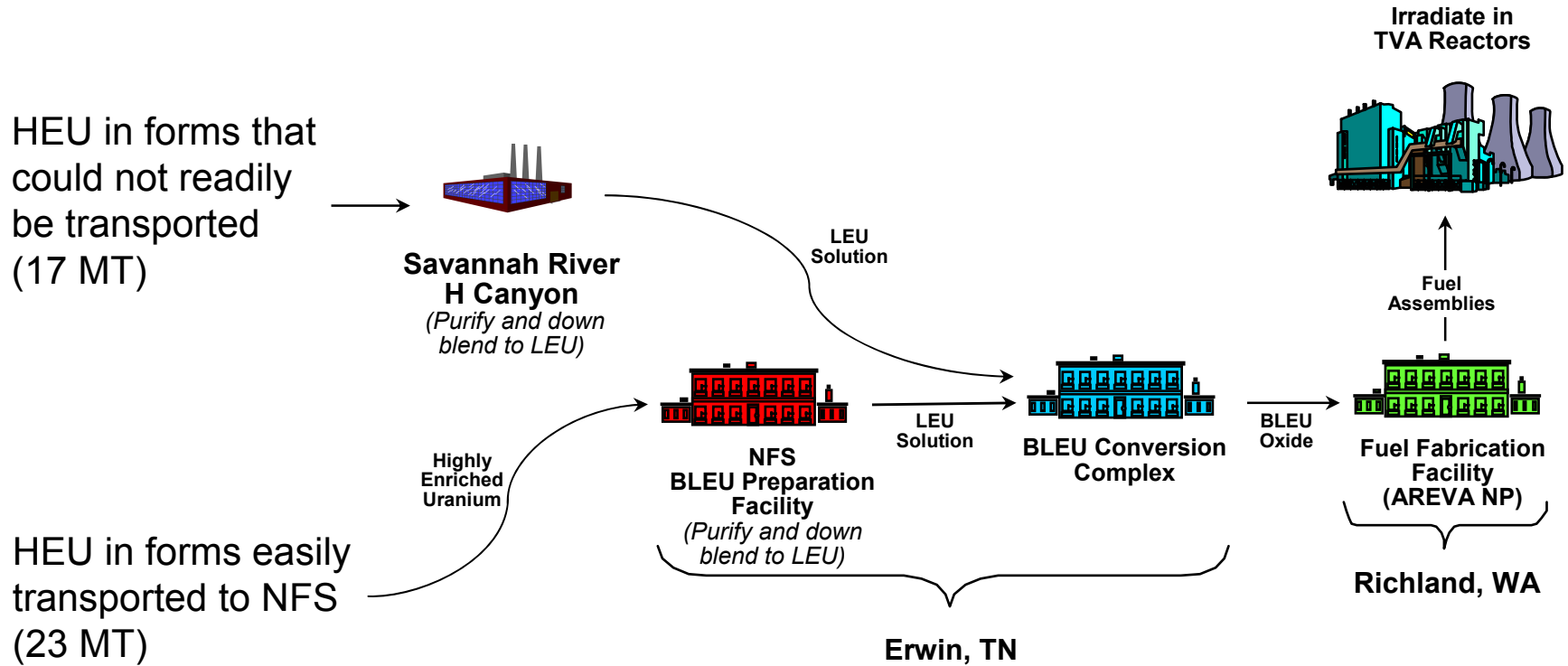
- NFS has a contract with TVA to purify and down-blend 23 MT of HEU to “blended low-enriched uranium” (BLEU).
- NFS site also receives LEU that’s been down-blended at Savannah River Site (SRS) for conversion to oxide.
- SRS has down-blended 16.3 MT and NFS has down blended 13.1 MT of HEU as of the end of February.

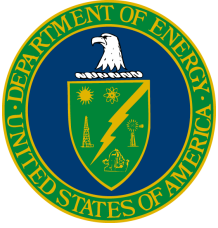


Uranyl Nitrate Building at NFS, Erwin, TN



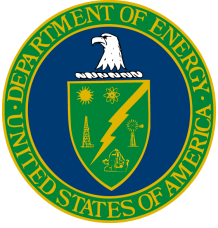
Off-Spec (BLEU) Program Process





NFS Role: Reliable Fuel Supply

- In September 2005, DOE Secretary Bodman announced that 17.4 MT of HEU will be down-blended, and the resulting LEU will be used to create a Reliable Fuel Supply for nations that agree not to pursue uranium enrichment and reprocessing.
- The 17.4 MT of HEU will be down-blended at NFS and will result in about 290 MT of LEU.



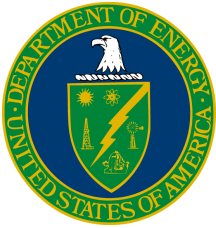
Reliable Fuel Supply (cont.)

Current Status:

- Contract awarded to Wesdyne/NFS team in June 2007.
- Shipped 5.6 metric tons of HEU to date.
- HEU down-blending will begin this month.

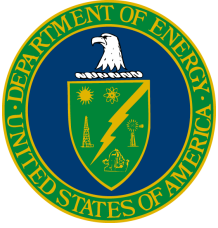


Supplement Analysis for the Disposition of Surplus Highly Enriched Uranium



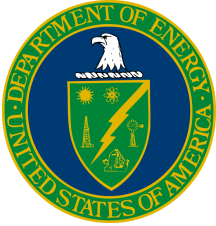
Purpose of Supplement Analysis

- HEU Disposition Environmental Impact Statement (EIS) issued in June 1996.
- In 2007, NNSA prepared a “Supplement Analysis” (SA) to review and update the EIS.
- Changes to the Program
 - a. New end-users for program material (Reliable Fuel Supply Initiative)
 - b. New disposal pathways for HEU discard material
 - c. Down-blending additional quantities of HEU



Contents of the HEU SA

- Evaluated environmental impacts of ongoing activities as well as new activities.
- The 1996 *HEU EIS* and 2007 *Supplement Analysis* both estimate risk of additional latent cancer fatalities (LCFs) based upon conservative assumptions and maximum potential throughputs.



Conclusions of the SA

- In 1996, DOE concluded that the risk was extremely small and the NRC agreed.
- In 2007, DOE/NNSA concluded that risk is still extremely small and the NRC still agrees.
 - Increased risk of one additional fatal cancer occurring in the total offsite population of approximately 1.3 million people living within 50 miles of NFS from exposure to approximately 70 years of continuous operation.
 - The exposure to radiation is so small, that it is many times less than a single chest x-ray.
 - For the average individual in this population, this translates to a 1 in 85 million chance that he or she would get a fatal cancer.