Presentation to the Savannah River Site Citizens Advisory Board

Plutonium Ship to WIPP

HB-Line Mission

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Background

- The Office of Environmental Management has up to ~5MT of surplus non-pit plutonium that is not currently suitable as feed to the Mixed Oxide Fuel Fabrication Facility (MFFF).
  - Approved Interim Action allows disposition of up to 85 kgs of the ~5MT
  - NEPA approval required for dispositioning additional Plutonium

- There have been several disposition plans for this material and the latest one was to dissolve in H Canyon, transfer to the sludge batch tank, and incorporate into the high level waste glass.
Savannah River has identified an approach to dispositioning some or all of this material by downblending and shipping to WIPP for disposal that appears to be more cost effective.

This option not only is more cost effective, it allows the material to be dispositioned earlier, and allows the material to be removed from the State of South Carolina in a more timely manner.
HB-LINE WIPP REPACKAGING FLOW SHEET

K-area

HBL Receive 3013s

Unload 9975 (Cal Room)

Transport and Bag into Glovebox Lines

South Line

Puncture 3013s and Open Outer

Open Inner 3013 Containers

Add ~150 g Pu to TOS Cans

Weigh TOS Cans w/Pu Oxide

Blend Can Contents with Mixer

Bag Out Cans from Glovebox

Perform (AWMC) NDA Measurements

Load into POC/Drums (one/each)

South Line

Open Outer & Inner 3013 Containers

Put Pu Metal into Furnace

Heat/Convert to Oxide

Cool Furnace

Bag TOS Cans into Gloveboxes

Load TOS Material into Cans

Transport (HC Staging Area)

Ship to E-Area

Perform WIPP Cert. NDA

Load into TRUPAC-II

Ship to WIPP

TOS – Termination of Safeguards
**Option Descriptions**

- **Evaluating use of HB-Line**
  - Utilize up to three of the existing HB-Line glovebox lines and ventilation system
  - Blend the plutonium oxide to less than 10% plutonium
  - Oxidize plutonium metal as required
  - Package into Pipe Overpack Containers
  - Ship to E Area for WIPP certification and loading into TRUPAC II container

- **Demonstration**
  - Utilize one of the three gloveboxes
  - Expect to prepare 1 shipment this fiscal year
  - Interim Action amended to allow disposition of initial ~ 85 kgs 3013 surveillance material

- **Full Campaign**
  - Utilize up to three gloveboxes
  - Process approximately 200 kgs Pu per year with one glovebox and up to 600 kgs per year if three gloveboxes are used
  - Additional NEPA is required in order to process balance of the non-Moxable Pu Inventory.