



AN INNOVATIVE APPROACH TO WEAPONS USABLE NUCLEAR MATERIALS MINIMIZATION

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10-14 February 2020



OPERATED BY SAVANNAH RIVER NUCLEAR SOLUTIONS

— PERMANENT THREAT REDUCTION —

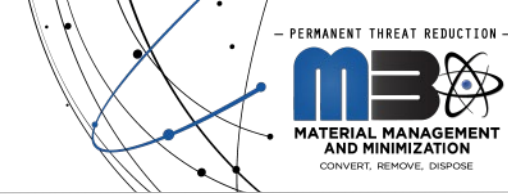


**MATERIAL MANAGEMENT
AND MINIMIZATION**

CONVERT, REMOVE, DISPOSE



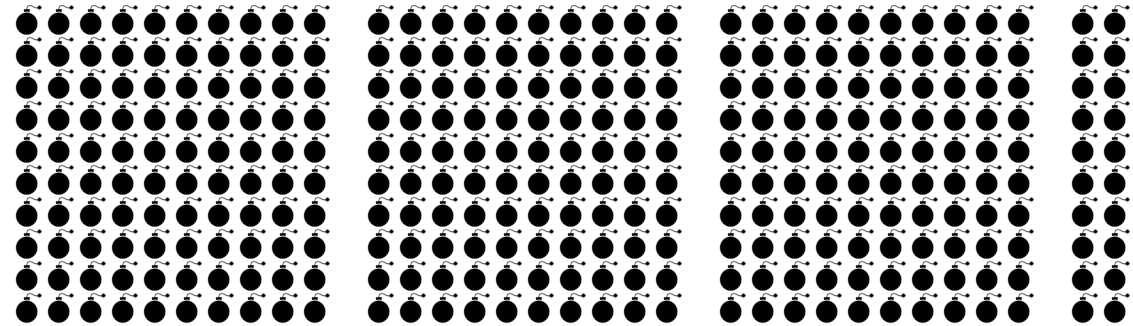
Efforts To Date



>7,100 kilograms
HEU and Pu



More than 320
weapons-worth*



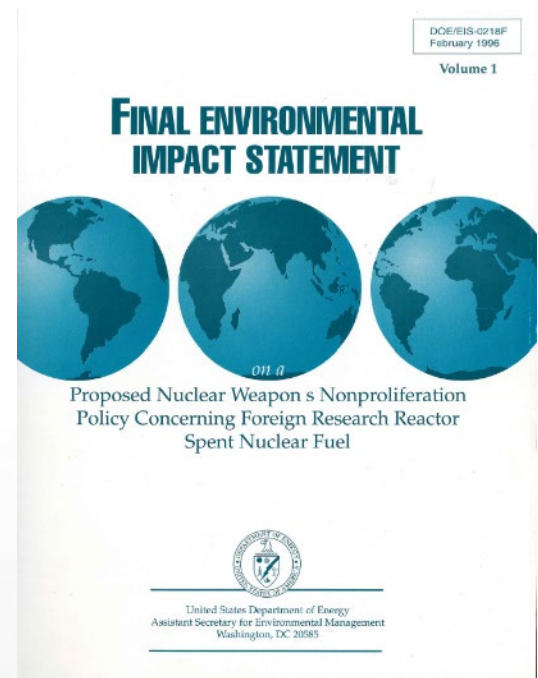
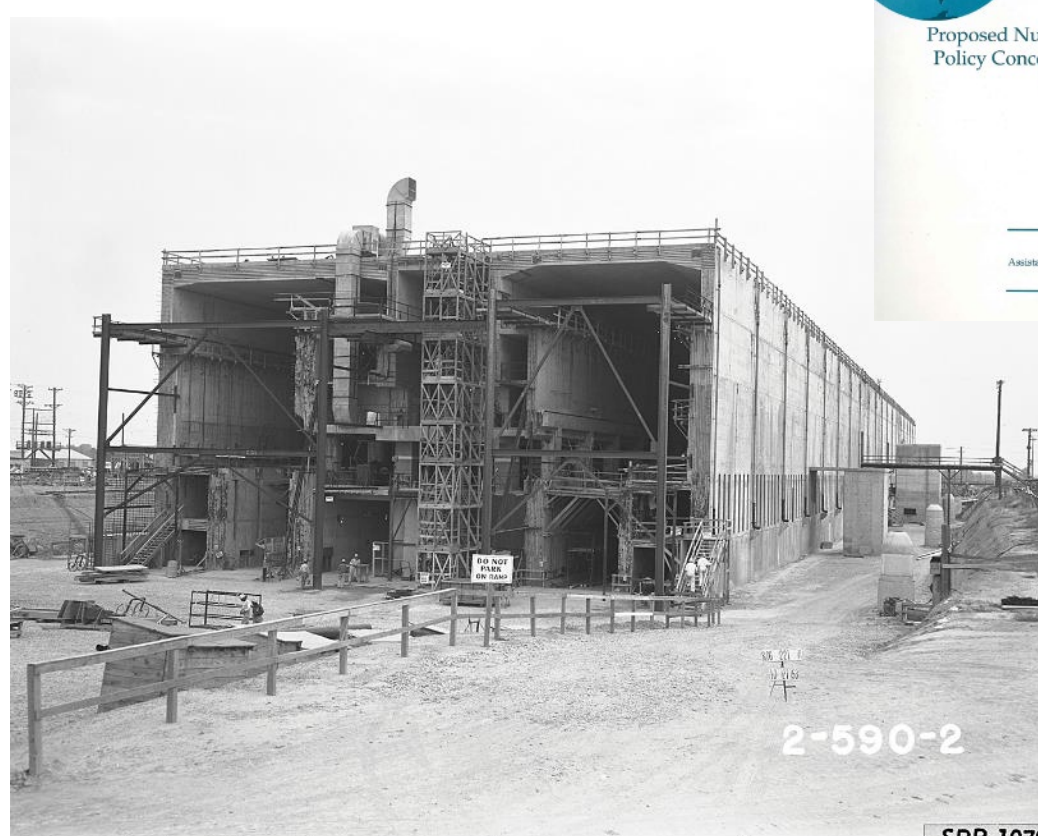
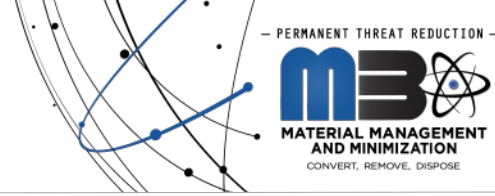
48 Countries and
Taiwan



* Assumes one SQ of material is equivalent to one weapon

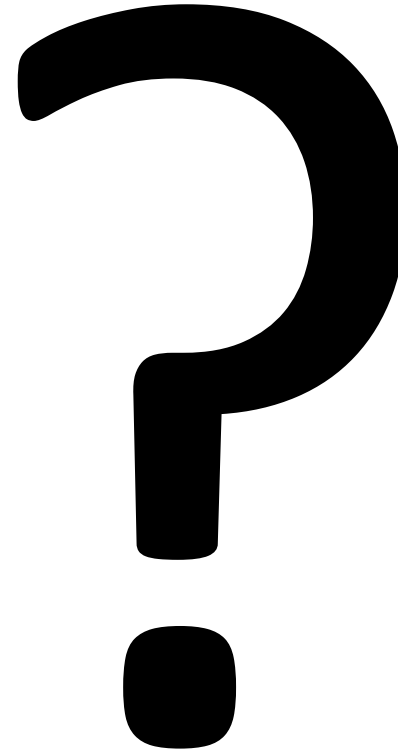
A New Approach Is Needed

- Diverse, small inventories
- Domestic politics
- Legal frameworks
- Infrastructure requirements
- Economic pressures
- But the threat is still there...

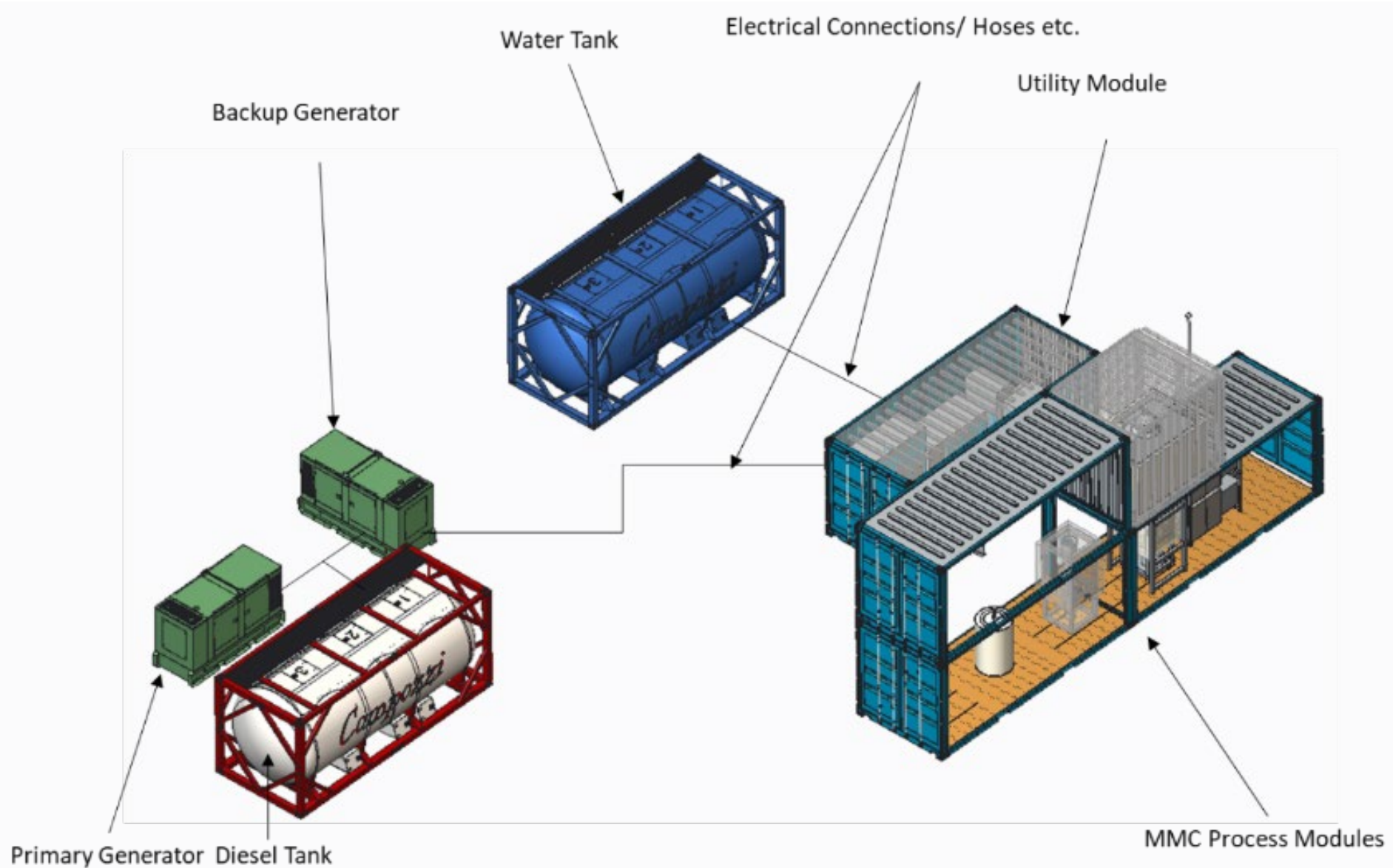


What Though?

- Simple
- Standard cargo containers
- Small footprint
- Standard utility connections
- Batch operations
- Ready on short notice

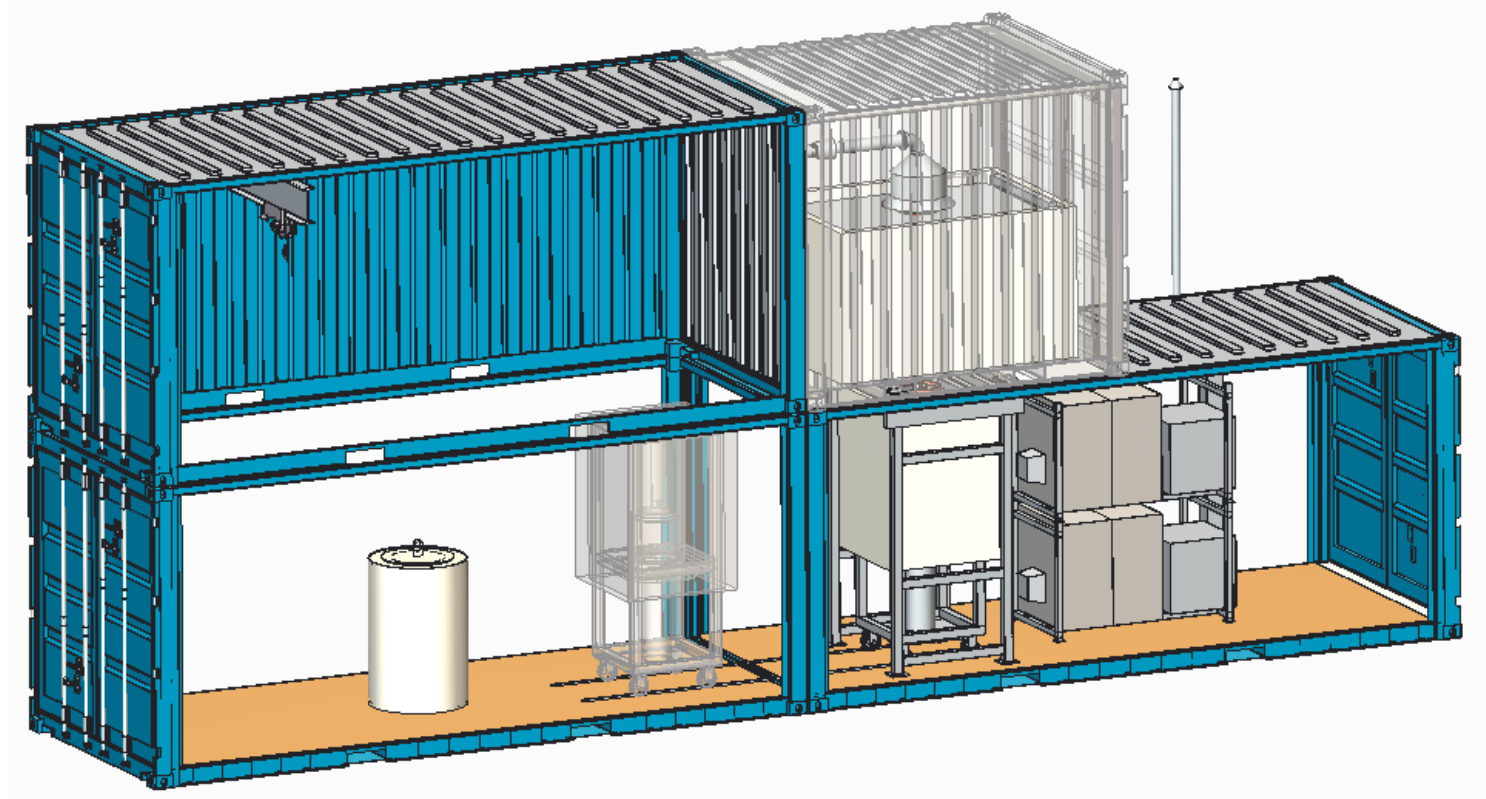


Enter Melt Processing



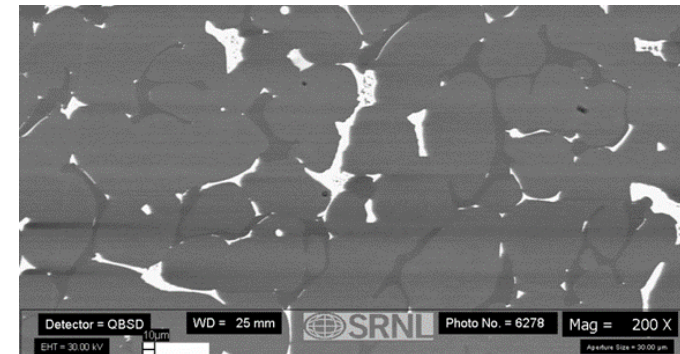
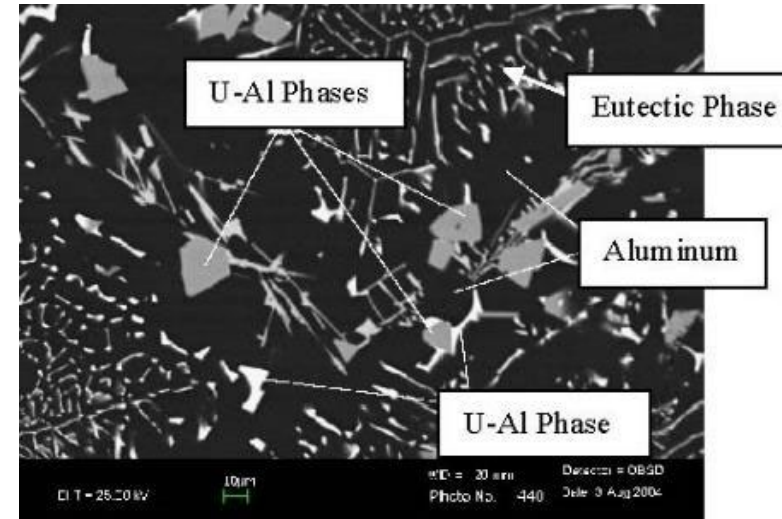
The Process

1. Load basket
2. Transfer to furnace
3. Dry, heat, stir, cool
4. Remove and package
5. Dispose



Considerations

- Safety
 - Bottom-load furnace
 - Controlled airflow
 - Shielding
- Versatility
 - Uranium
 - Thorium
 - Aluminum
 - Zircaloy
 - Stainless
 - Metal
 - Oxide
- Modularity
 - Shielding
 - Off-gas
- Durability & Waste Minimization
 - Off-the-shelf components
 - Limit contamination

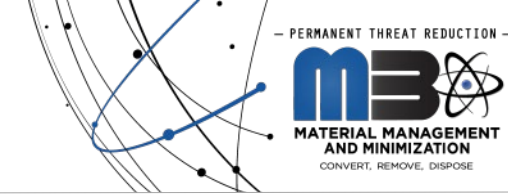


Benefits

- **Nonproliferation:** Reduces material attractiveness
- **Flexibility:** Eliminates wide variety of materials
- **Handling:** Produces uniform end-products
- **Customization:** To meet disposal and other criteria
- **Deployment:** Avoids the need for international shipment of nuclear materials



Questions?



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