

NNSA is committed to accelerating efforts to remove plutonium from the state of South Carolina and establishing a long-term, sustainable mission for surplus plutonium disposition for decades to come.

Mission: To expedite the removal of plutonium from South Carolina and permanently dispose of weapons-grade plutonium declared excess to national security.

OVERVIEW

The Department of Energy is focused on meeting legal obligations to the state of South Carolina. Dilute and Dispose is a technically proven, cost-effective approach that is currently being used to dispose of up to six metric tons of impure plutonium (Pu). NNSA proposes to use this process to permanently dispose of additional inventories of surplus plutonium. The Savannah River Site, its infrastructure, and its critically skilled workforce are essential to the successful completion of this national security mission.



TWO-PRONGED APPROACH

NNSA's proposed approach is to establish an enduring capability to downblend plutonium for permanent disposal as transuranic waste at the Waste Isolation Pilot Plant in New Mexico. This approach includes standing up new and enhanced capabilities in K Area at the Savannah River Site to expand operations. These capabilities include:

Near Term

- Optimize the process currently used in the K Area Interim Surveillance glovebox
- Establish characterization, interim storage, and shipping capability within K Area
- Enhance personnel and material accessibility to the material access area

Long-Term

- Add three additional gloveboxes to expand downblend processing capacity, including supporting equipment and systems

DRIVING FACTORS

- Legal Commitment to the state of South Carolina: accelerate removal of plutonium from the state and meet legal requirements
- U.S. Policy: meet commitment for permanent disposal of excess weapons-grade material
- Global Security: ensure material cannot be used for nefarious purposes
- International Commitment: demonstrate global leadership in stockpile reductions and lead the way in nuclear security

DILUTE AND DISPOSE PROCESS



1.

Pu oxide can is placed in a glovebox



2.

Puncture device vents the can prior to opening to relieve any pressure



3.

Pipe cutter opens outer and inner can



4.

Pu oxide is placed in new can along with dry adulterant to dilute Pu to less than 10 weight percent



5.

Can is sealed and mechanically manipulated to blend contents



6.

Can is removed from glovebox, assayed, and packaged into approved Nuclear Regulatory Commission licensed drum



7.

Drum is certified for receipt at repository and placed in shipping container



8.

Shipping containers are transported to repository by commercial truck