



U.S. DEPARTMENT OF  
**ENERGY**



# Overview and Status Update of the Savannah River Site Building 235-F Risk Reduction Project

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*CAB Briefing*  
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# Outline

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- DNFSB Recommendation 2012-1
- Completed Actions
- Scope of Work
- Progress
- Challenges
- Video
- Path Forward

# DNFSB Recommendation 2012-1

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- At the conclusion of the Plutonium Fuel Form Facility (PuFF) mission, work stopped in 235-F. There were no efforts to layup the facility.
- In a seismically induced full facility fire accident scenario the **calculated** unmitigated dose is about 11,900 rem to the co-located worker (personnel within 100 meters).
- On May 9, 2012 the DNFSB issued Recommendation 2012-1 to address the Material at Risk (MAR) in 235-F.
- Desired end point: Reduce the risk by removing or immobilizing MAR from PuFF to lower total facility risk to a point within DOE standards (100 Rem), not final building disposition.
- An implementation plan was developed and approved to outline the actions that will be taken to meet the goal.

# Completed Actions

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- Transient combustibles removed from the building and control program established.
- Fixed combustibles encapsulated or isolated
- De-energized electrical circuits not needed for deactivation
- Fire Detection and Alarm System installed
- Developed emergence drills to integrate response with adjacent facilities
- Revised and implemented Safety Basis Documents to allow work in cells 1-9
- Performed Enhanced Characterization of PuFF cells and wing cabinets.
- Electrically and Mechanically isolated PuFF cells 1-9.
- Restored cell infrastructure (lights and gloves) to allow MAR to be removed.

# Scope of Work

- MAR removal is accomplished by systematically removing items from the cells and decontaminating the cells as much as possible.
- Waste will be removed from PuFF cells through the a port on cell 1 maintenance cabinet.
- An additional layer of containment has been installed at the port to aid in contamination control.
- Waste will be staged in metal pails until assayed.
- Once assay results are received, waste cuts will be loaded into 55 gallon drums.

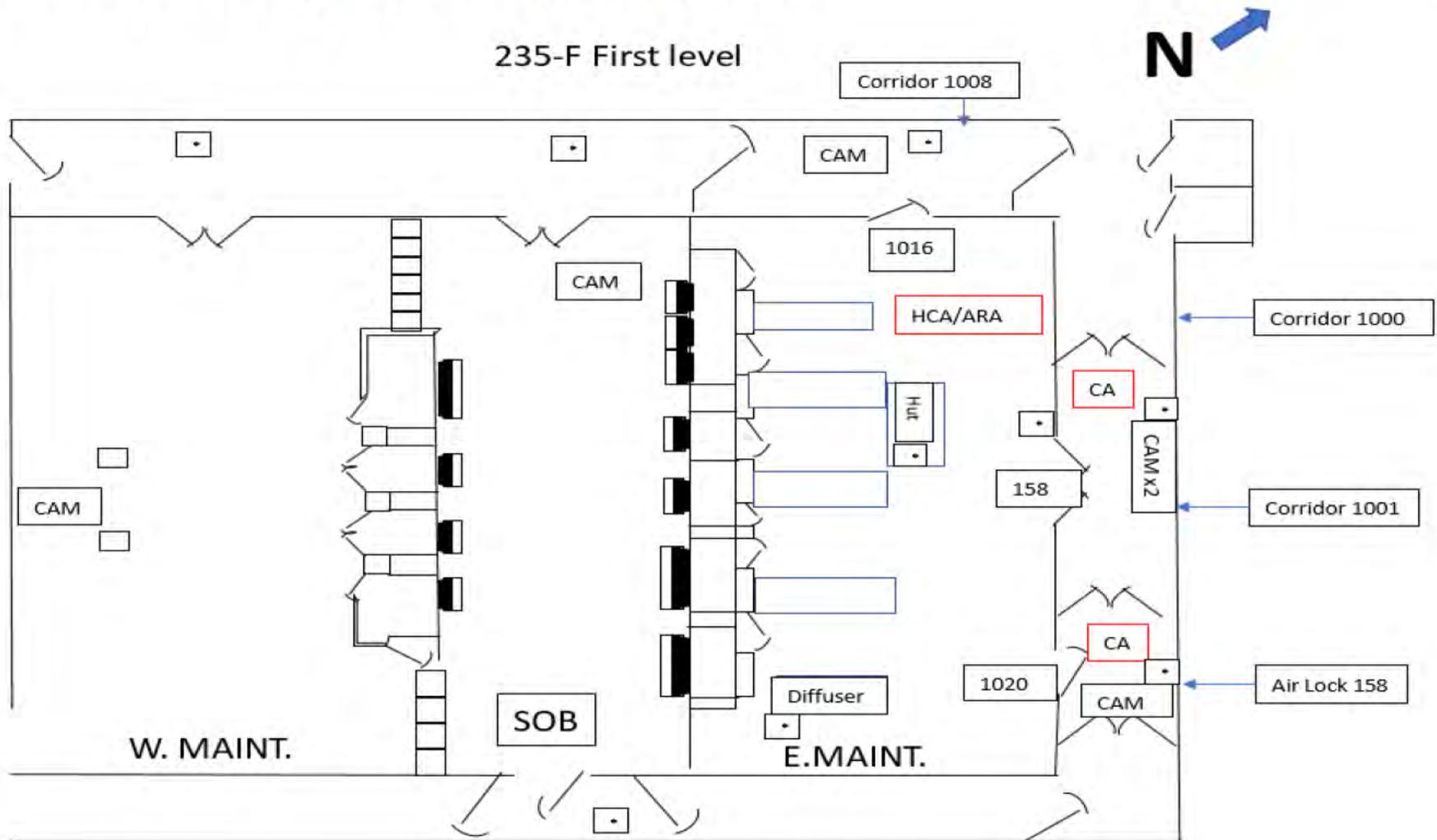


# Scope of Work cont.

- Containers will be characterized and shipped to Solid Waste (E Area).
- Waste will be packaged to meet the acceptance criteria for the Waste Isolation Pilot Plant (WIPP).
- Each entry typically consist of two Risk Reduction Technicians and one Radiation Protection Department Inspector in East Maintenance. Support personnel will be in the Contamination Area, Radiological Buffer Area and Command Center.



# Pu Fuel Form (PuFF) Facility Layout



\*Air Samplers

# Challenges

- **MAR removal is difficult**
  - Few penetrations into cells
  - Few glove ports, limited reach
  - Long handle tools are awkward, difficult to maneuver.
  - Limited visibility.
  - Working conditions/PPE
  - Obstructions in cells
  - Degraded conditions

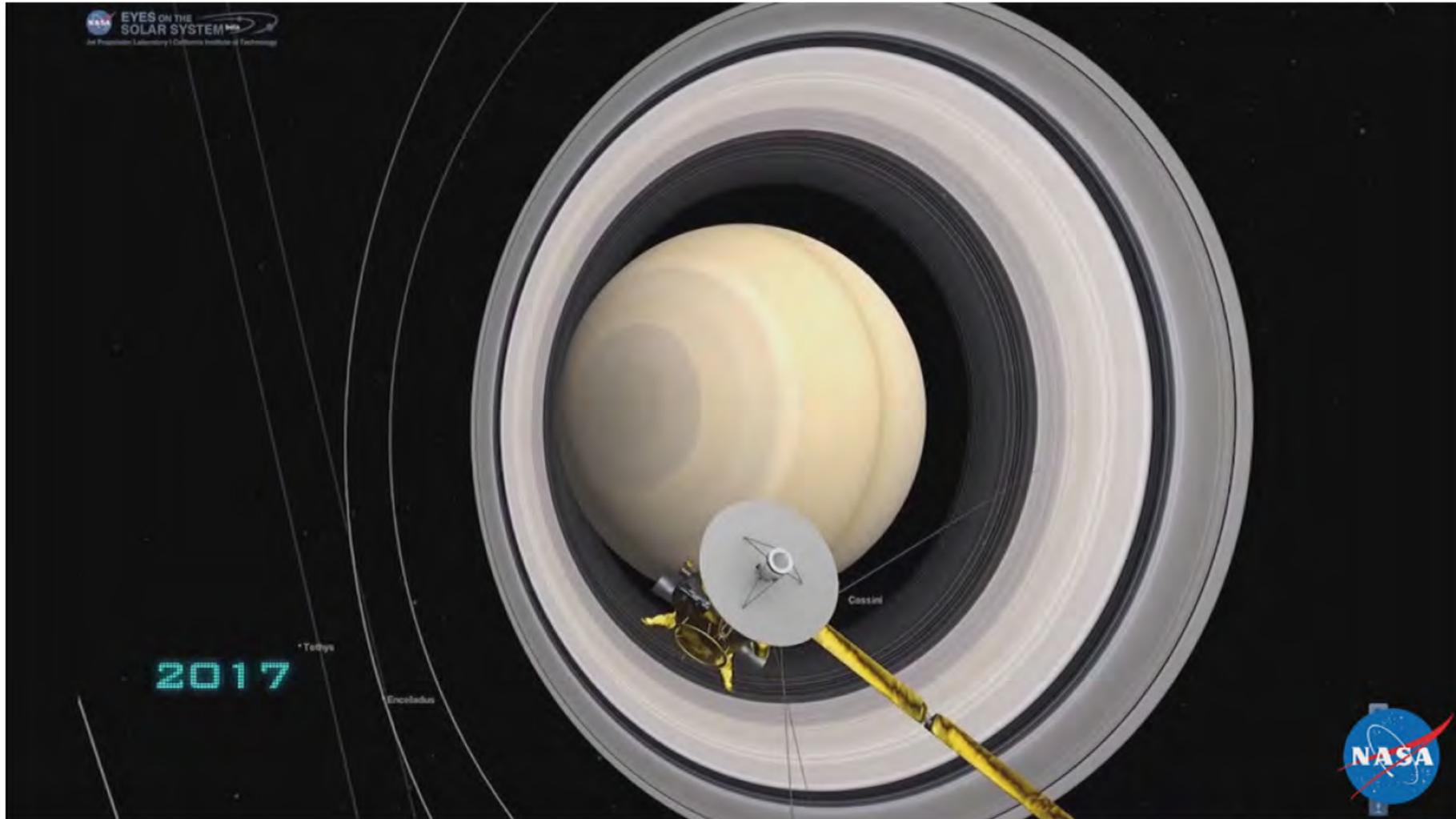


# Challenges

- **Pu-238 oxide is extremely hazardous.**
- **Workers wear:**
  - Two pair of anti-contamination clothing
  - Fresh air hood
  - Lead apron
  - Lead sleeving
  - Radiation attenuating gloves
  - Puncture resistant gloves (HexArmor)
  - Multipack dosimetry
- **Contact radiation rates for waste cuts have been as high as 3 Rem/hr.**



# 235-F Update



[Click on image above to view video](#)

# Progress

- 150 waste cuts containing approximately 75 grams of  $\text{Pu}^{238}$  have been removed and assayed.



# Path Forward

- Cells 1&2 along with the associated wing cabinets contain 436 grams.
- Risk Reduction will remove as much material as possible from cells 1&2, then re-characterize the cells.
- In addition to removing MAR, engineering is evaluating the impacts to the MAR if there were a fire in 235-F.
- Planning has started for the Deactivation of 235-F. Deactivation will make the 235-F “Cold and Dark” when the MAR removal is complete. “Cold and Dark” is defined as no active structures, systems and components (SSC) in Building 235-F.



# Path Forward cont.

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- Having the plans developed will allow the team of experienced workers to move directly into the Deactivation activities.
- Deactivating the building will greatly reduce the cost of Surveillance and Maintenance of 235-F.
- Working with the Area Completion Program, the Deactivation will prepare the facility for final Decommissioning.