# Progress of the High Level Waste Program at the Defense Waste Processing Facility

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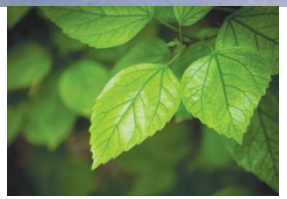
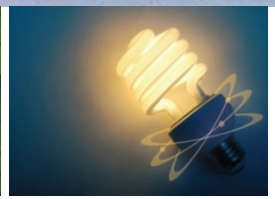
DWPF Process Improvement


*Nuclear Waste Technical Review Board: Spring 2013 Meeting*

*Richland, WA*

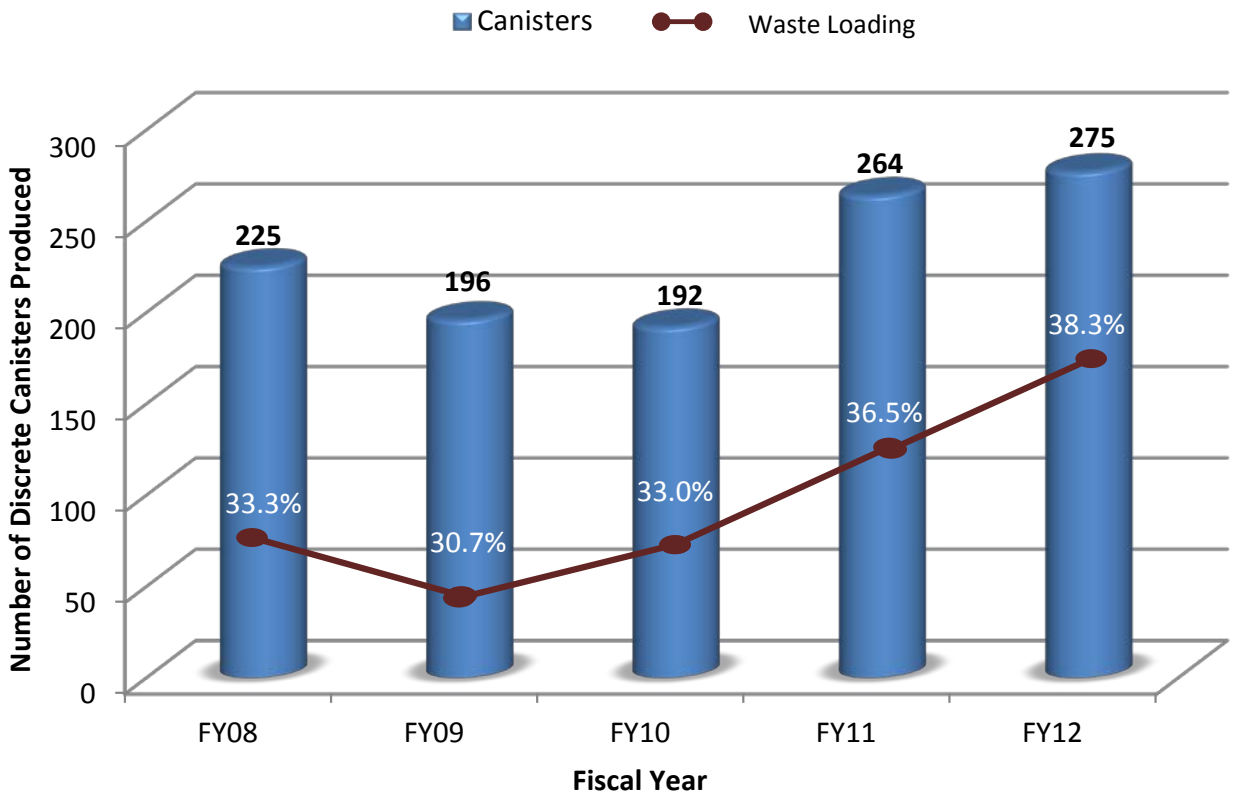
*April 16, 2013*

Savannah River Remediation
A URS COMPANY TEAMED WITH BECHTEL | CH2M HILL | B&W | AREVA

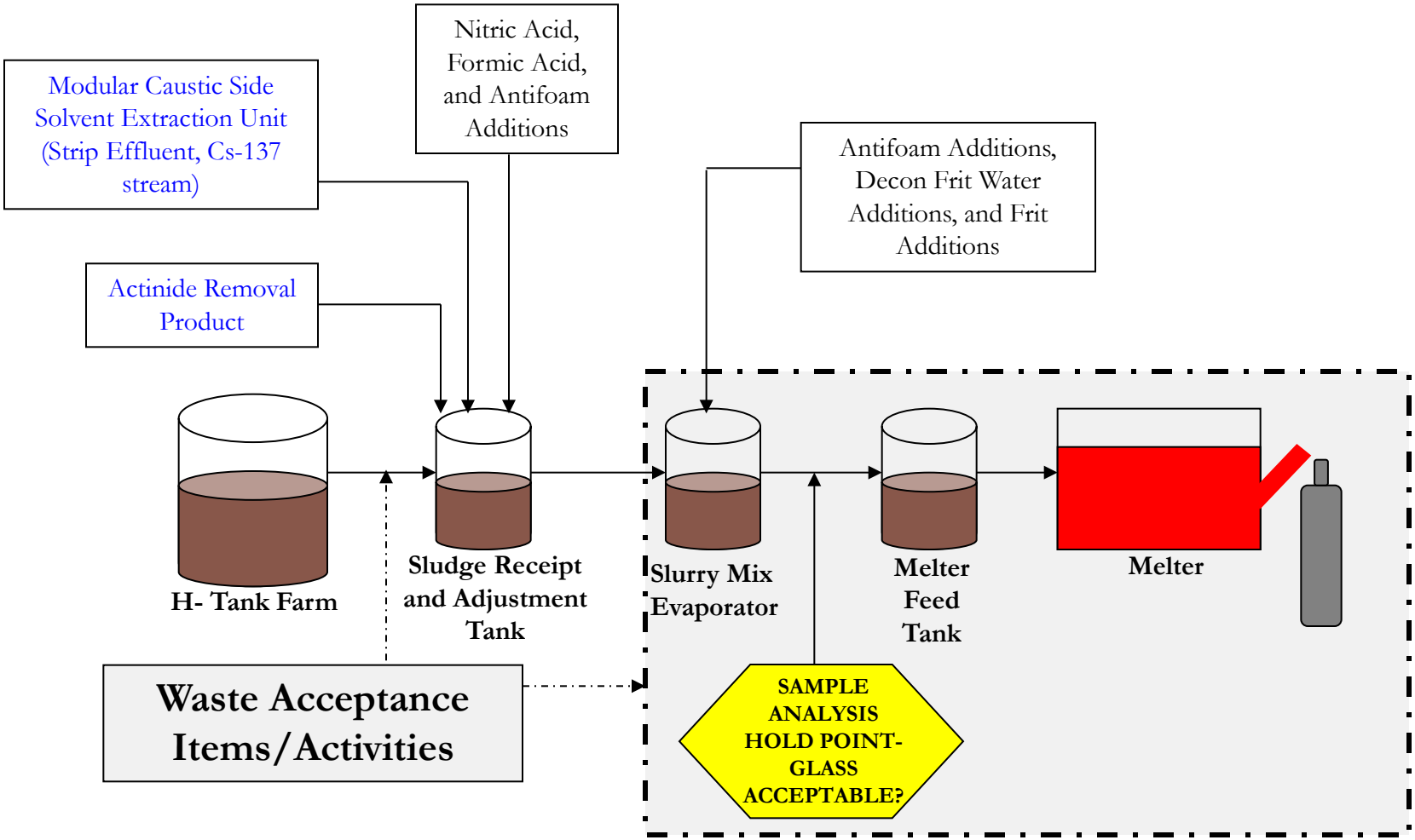
U.S. DEPARTMENT OF ENERGY

# DWPF Progress

- 4.0 million gallons HLW treated
- 14 million pounds of glass produced representing 50 million curies
- 3600+ canisters filled (7500+ planned)
- Currently processing Sludge Batch 7; Sludge Batch 8 to start May 2013 (18 batches planned)
- Production performance for FY13 currently below target



# DWPF Overview



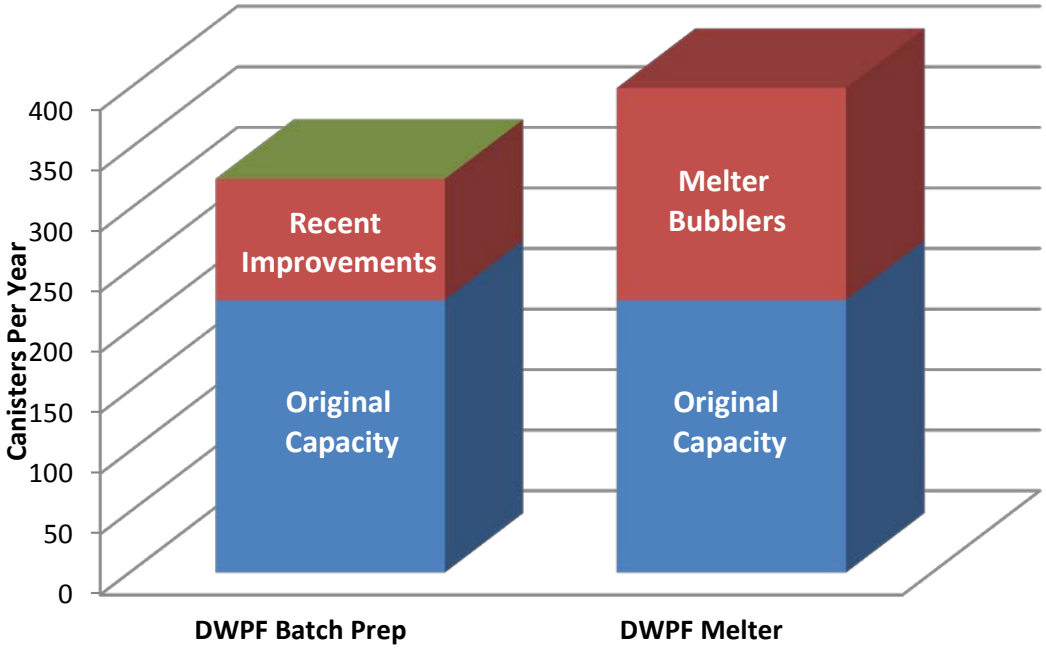

Process works to produce highly durable borosilicate wasteform.

# Recent Improvements



- Extensive improvements made to increase waste throughput
  - Reduction in cycle time of melter feed preparation cycle (e.g. analytical improvements)
  - Melter bubbler installation to increase melt rate
  - Increase in waste loadings due to "tailoring" frit (i.e. more waste in each can)

Goal is to maximize waste throughput to reduce environmental risk.

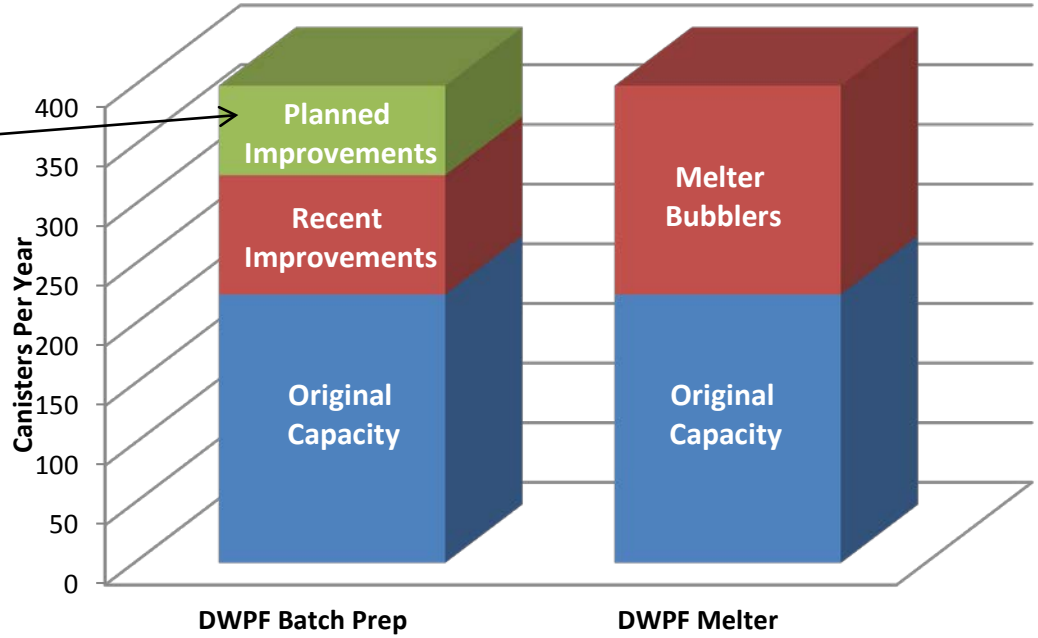


# Challenges and Future Work

- Growing need to provide flexibility to accommodate variability in SRR System Plan (e.g. waste feed compositions, input streams)
  - Understand and expand operating windows (simplify process to improve throughput)
  - Optimize processing windows for future waste compositions (higher waste loadings)
  - Addressing demand for higher process/equipment reliability due to closely coupled operations and increased activity in Tank Closure efforts and salt waste processing

- **Alternate Reductant**
- **Dry Frit**
- **System Reliability**

Goal is to position facility for continuous success.



- Lessons learned over 18 years of operation
  - Efficiency of waste qualification program
  - Success of statistical process control (versus product quality control) methodology
  - Decontamination features provide ability to perform hands-on work on critical equipment
  - Utility of maintaining research facilities and expertise throughout the DWPF production life to address immediate issues as well as forward-looking improvements
  - Synergizing ideas from multiple technology organizations
  - Continuous improvement required to accommodate changes in SRR System Plan
  - Understanding impacts of changes in processes on the physical properties of material
  - Volume management critical to vitrification production performance