

Citizens Advisory Board Update on H Area Operations

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Nuclear Materials Committee

Aiken, SC

Acronyms

AFS-2 – Alternate Feed Stock 2

Al – Aluminum

ARRA – American Recovery and Reinvestment Act

DSA – Documented Safety Analysis

HEU - Highly Enriched Uranium

MFFF – Mixed Oxide Fuel Fabrication Facility

MOX – Mixed Oxide

NNSA – National Nuclear Security Administration

POC – Pipe Overpack Container

Pu - Plutonium

SRE – Sodium Reactor Experiment

TRU – Transuranic Waste

TSR – Technical Safety Requirements

U - Uranium

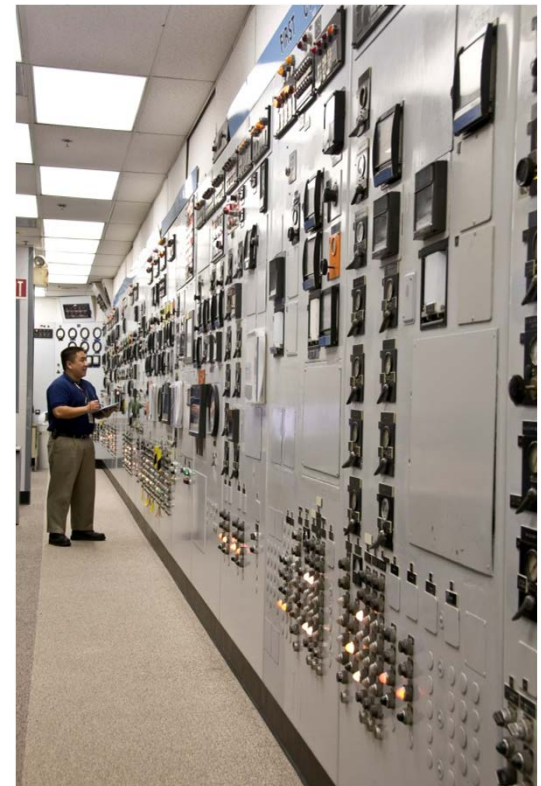
WIPP – Waste Isolation Pilot Plant

Purpose

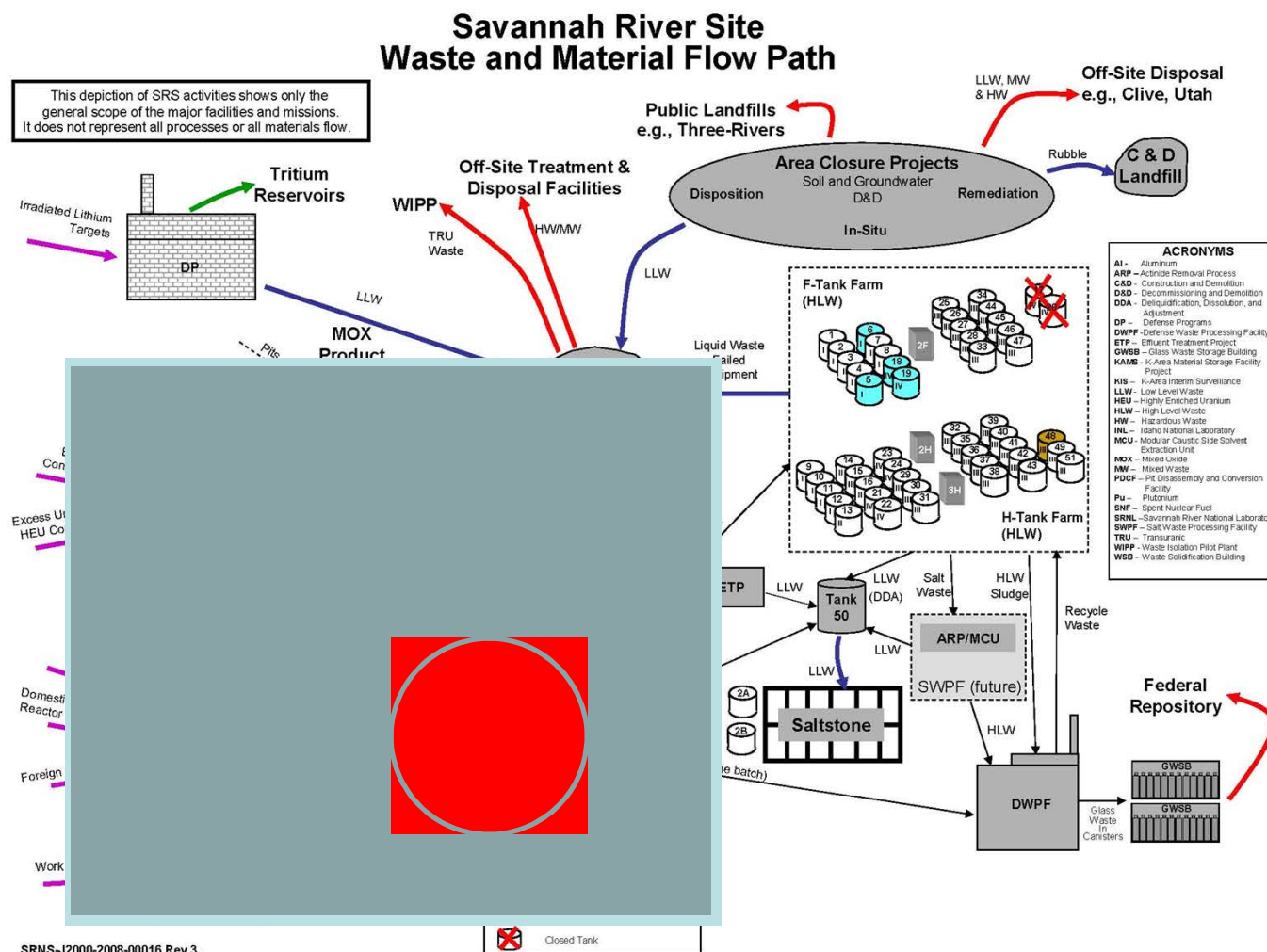
To Fulfill Nuclear Materials Committee 2012 Work Plan Topic –

Nuclear Materials Reuse/Disposition

- Pu Reuse (Prep) for Mixed Oxide Fabrication Facility
- Pu Disposition to Waste Isolation Pilot Plant
- Used Nuclear Fuel Disposition via H Canyon



Waste and Material Flow Path



Current Status

- **Performing proficiency runs to ensure the retention of operator qualifications and equipment operability in H Canyon**
- **Remediating legacy TRU waste in H Canyon**
- **Dispositioning non-MOXable plutonium in HB Line (WIPP Blend)**
- **Initiated “vulnerable” fuel dissolution campaign (Sodium Reactor Experimental Fuel) in H Canyon**
- **Initiated Alternate Feed Stock 2 (AFS-2) Plutonium Processing with Dissolution in H Canyon**
- **Preparing HB Line for AFS-2 Pu Oxide Production**

H Canyon – Legacy TRU

- Remediating legacy TRU waste for past 7 years in Warm Canyon...accelerated over the past few years with ARRA funding
- Rendering compliant against WIPP certification requirements
- H Canyon processing some of the most radiologically challenging materials (Large Steel Boxes, Concrete Vaults, etc.)
- Expect to complete H Area scope in Spring 2013



H Canyon – “Vulnerable” Fuel Dissolution

- Initiated Sodium Reactor Experiment (SRE) Fuel Dissolution Campaign
- Although no current issues with SRE in L Basin storage, it is considered more “vulnerable” to long term wet storage
- SRE and other Hi Al/Low U fuels campaigned as a blend to mitigate viscosity issues of thorium-based fuel (SRE) in caustic solution
- Disposition to Tank Farm
- Expect to complete in Fall 2013

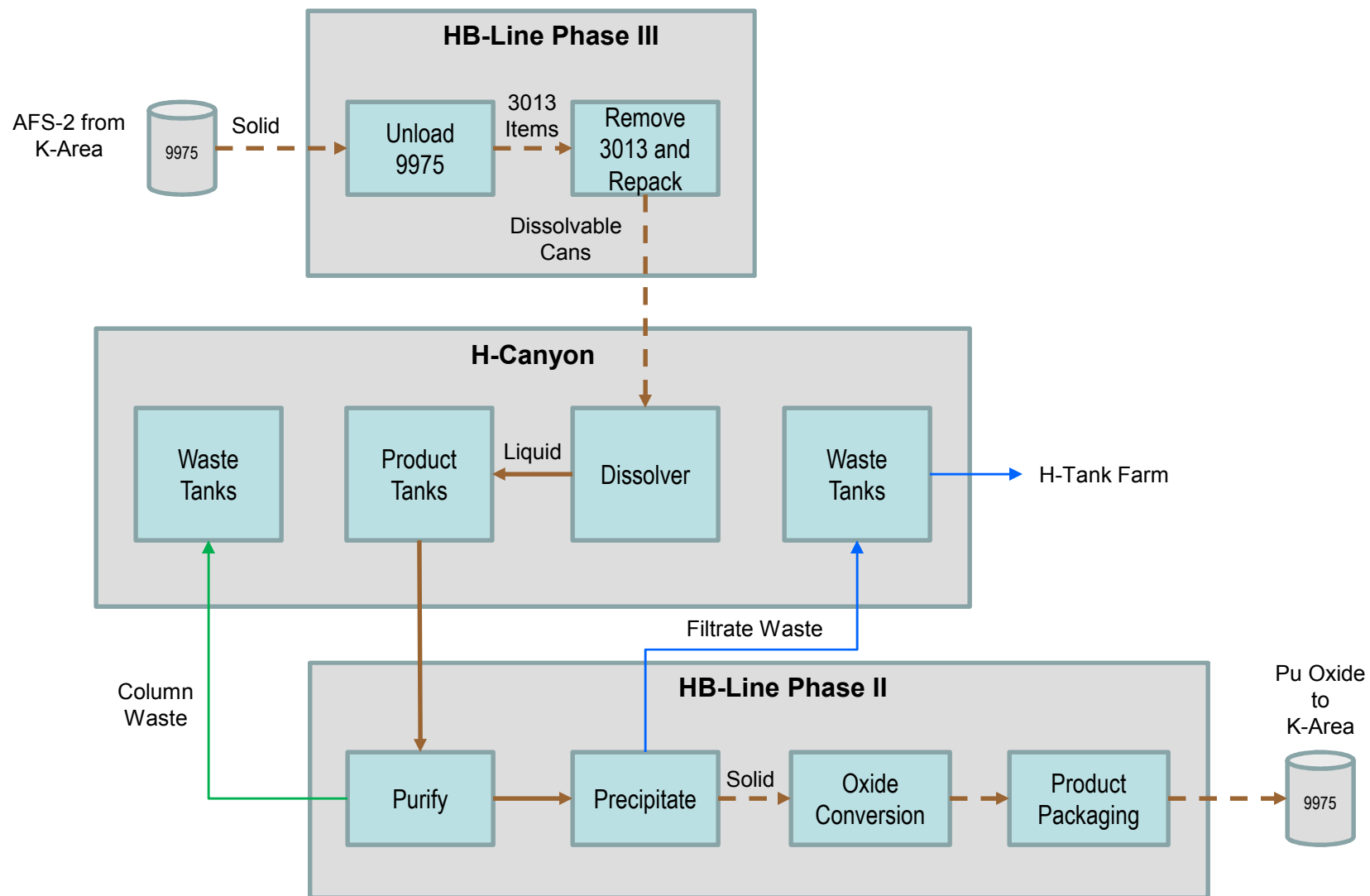


H Canyon/HB Line – Pu Oxide Production

In November 2011, new mission assigned to Produce Plutonium Oxide Feed for MFFF from Alternate Feed Stock 2 (AFS-2) through FY17. Specifically, directed to:

- Prepare for H-Canyon/HB-Line and support facilities for startup per timetable and MFFF feed specs
- Reconfigure process operations to allow for full ramp up to 1 MT oxide production rate by FY15
- Develop/Implement all required safety basis documentation and required modifications, including implementation of DOE Std 3009 compliant DSA/TSR for HB-Line
- Proceed under “Interim Action” approval

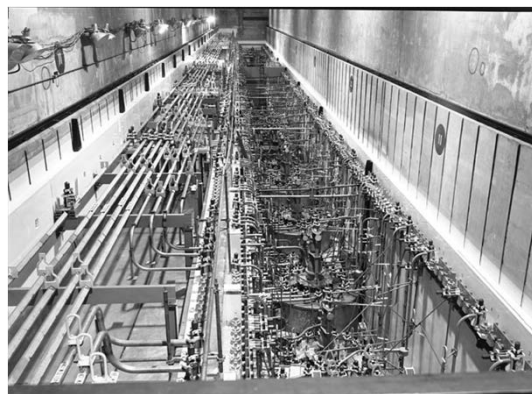
H Canyon/HB Line – Pu Oxide Production



H Canyon/HB Line – Pu Oxide Production

Progress/Current Status:

- Completed multiple safety basis changes, procedure changes, training, etc. and initiated AFS-2 repackaging and dissolution
- Safety Basis changes for Oxide Production in HB Line are pending DOE review/approval
- When approved, Operations procedures will be finalized and SRNS/DOE readiness assessments will be completed
- Expect to begin HB Line oxide production later this Fall



HB Line – Non-MOXable Pu Disposition

- Utilizing existing HB Line Phase I glovebox line and ventilation system
- Blending “Non-MOXable” Pu Oxide with inert agent to <10% Pu
- Packaging into Pipe Overpack Containers (POCs)
- Shipping to E Area for WIPP certification and shipment to WIPP
- Approved Interim Action for up to ~585 kgs Pu
- Recently made first shipments to WIPP



Other Missions Under Discussion

- Additional Pu processing for MFFF
- NNSA Highly Enriched Uranium (HEU) Blend Down
- Advanced Safeguards Testing
- Americium-241 Recovery



Summary

- **H Canyon Complex remains unique national asset for large scale nuclear materials processing**
- **Maintaining operator proficiency/equipment operability**
- **Early stages of campaign startup for SRE fuel dissolution/disposition and AFS-2 dissolution/oxide production**
- **Legacy TRU remediation**
- **Blending down “Non-MOXable” Pu for disposition to WIPP**
- **Enterprise SRS team evaluating other mission opportunities**



H Canyon Complex

