Accelerated Basin De-inventory (ABD) Mission at the Savannah River Site

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Citizens Advisory Board

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What is ABD

- **Opportunity to align resources at the Savannah River Site (SRS) to reduce overall liability.**
  - Integrates with the Liquid Waste system, which is available until 2033.
  - Will discard dissolved Spent Nuclear Fuel (SNF) into awaiting Liquid Waste sludge batches.
  - Sludge batches are ultimately vitrified into glass waste canisters at the Defense Waste Processing Facility to be disposed in a future federal repository.
- **ABD mission benefits:**
  - Reduces long term risks and liability and accelerates disposition of SNF.
  - Completes Mission in 11-years.
  - Continues SNF receipts, while SNF disposition methods are developed by Offices of Science and Nuclear Energy.

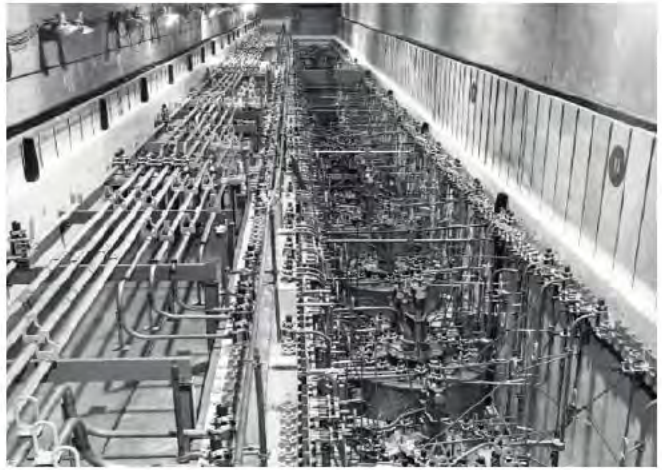
L-Basin SNF Storage

Oak Ridge High Flux Isotope Reactor

What is ABD (cont'd)

- **Continues to maintain high state of capability within H-Canyon.**
  - Ability to return systems to recovery operations.
  - Simplified operations allows relocation of personnel to other critical shortage areas and does not require a reduction in overall jobs.
  - Reduces immediate infrastructure needs and cost savings allows for more near-term maintenance to be performed.

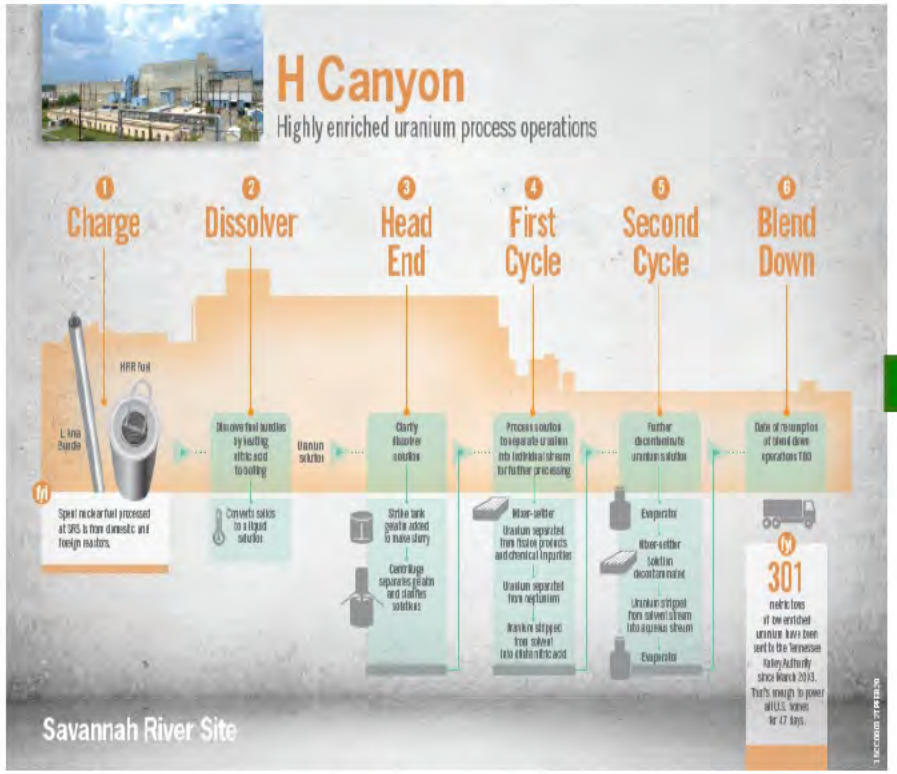
H-Canyon Facilities



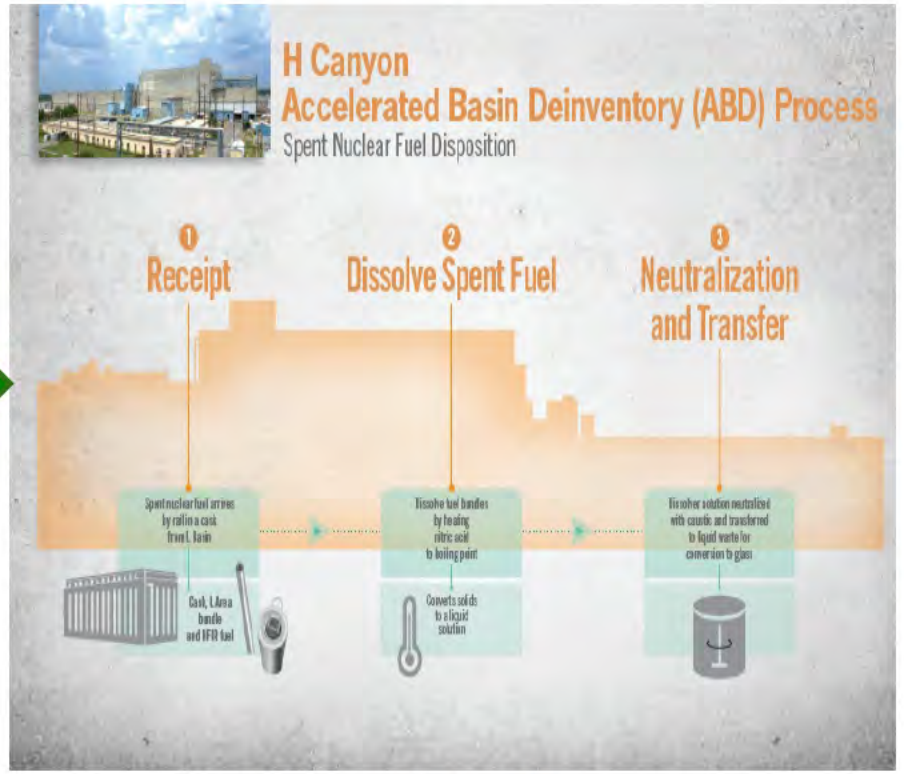
H-Canyon Processing Equipment

H-Canyon Overhead Crane

Mission Comparison



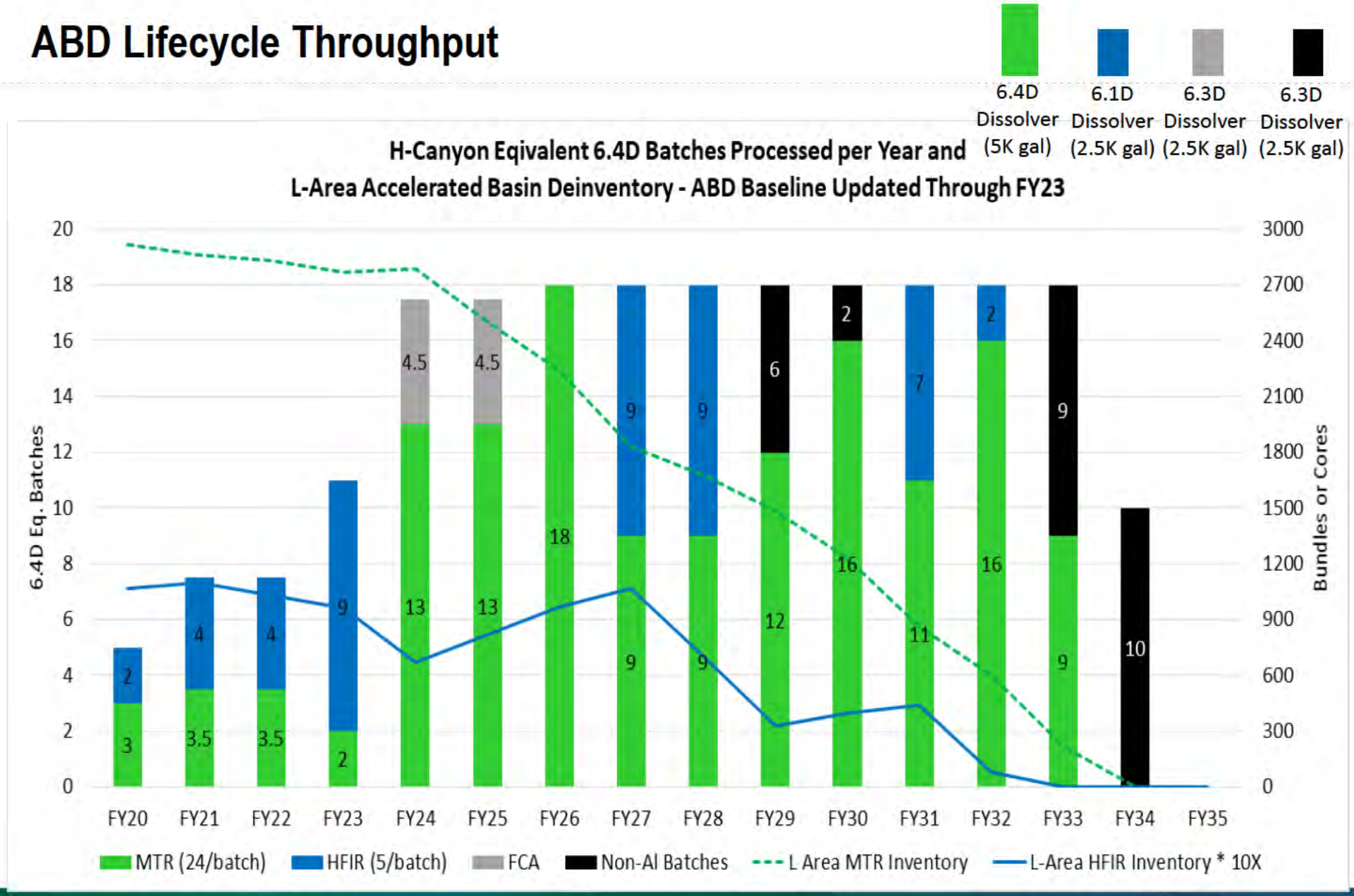
Prior Mission



Approved ABD Mission

Transition from uranium recovery to ABD significantly simplifies the operations processes within H-Canyon, reducing risk, operating cost, and accelerating the throughput rate.

ABD Lifecycle Throughput



Benefits of ABD

- **Aligning with the Environmental Management (EM) priority clean-up mission.**
  - Accelerates disposition of legacy SNF by more than 20 years (2033 vs 2055).
- **Making the most efficient use of the Canyon while it is available.**
  - The Canyon is expensive to maintain and operate and is 70 years old.
  - Reduces needed infrastructure investments.

221-H Hot Crane Runway/ Power Rails with Water Intrusion Shown

Corroded/Failing Caustic Header

- **Reducing, to the maximum extent possible, the L-basin material that will remain once the Canyon is no longer available.**
  - We will reduce the cost of managing that material.
  - Eliminates the need for dry storage.

Benefits of ABD (cont'd)

- Providing L-basin storage space to support other DOE programs.
- Integrating with the existing Liquid Waste System.
  - Able to disposition SNF while the Liquid Waste facilities are still operational.
- Remaining flexible.
  - Ability to return to uranium recovery operations if deemed necessary.
  - Still incorporate other missions as necessary (Fast Critical Assembly).
- Creating a safer work environment.
  - Eliminates security risk associated with storing HEU.
  - Creates a "Greener" process by reducing use of chemicals potentially harmful to workers and environment.

Where Are We Today?

- **Mission was approved in April.**
  - Required documentation was signed and published in the Federal Registry.
  - Included an environmental analysis to comply with the National Environmental Policy Act (NEPA).
  - Included vetting through the Deputy Secretary of Energy.
- **Preparations for 1st sludge batch discard.**
  - Integrating with Liquid Waste to complete necessary adjustments to discard material.
  - Remaining safety analyses are working and will complete prior to any transfers.
  - 1st transfer to begin as early as December 2022.
- **Providing benefits to Stakeholders.**
  - Reducing lifecycle cost and taxpayer liability.
  - Eliminating security concerns with storage of Highly Enriched Uranium (HEU).