



U.S. DEPARTMENT OF  
**ENERGY**



# Strategic Lifecycle Planning for Site Cleanup

*System Plan Integration for Area Closure*

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DOE-Savannah River

*SRS Citizens Advisory Board – Savannah, GA*

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# Acronyms

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ACP	Area Completion Projects
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (one of the laws requiring cleanup of the Savannah River Site)
D&D	Deactivation and decommissioning
D&R	Demolition and removal
DOE	Department of Energy
DPFR	Decommissioning Project Final Report
EE/CA	Engineering Evaluation/Cost Analysis
FDE	Facility Decommissioning Evaluation
FFA	Federal Facility Agreement for the Savannah River Site (directs the comprehensive remediation of SRS)
RCRA	Resource Conservation and Recovery Act (another law requiring cleanup)
PBS	Project Baseline Summary (which encompasses the projects and activities, to maintain regulatory compliance and safe conditions)
SRS	Savannah River Site



# Agenda

- **Mission**
- **Strategy: Integrated Lifecycle Approach**
- **Regulatory Requirements**
  - FFA and RCRA/CERCLA
  - Collaborative, critical path
- **Site Closure**
  - Waste unit remediation
  - Facility D&D



*235-F: In preparation for decommissioning*



# Mission

- **The site closure mission includes protection of human health and the environment through:**
  - Safe deactivation and decommissioning of legacy facilities
  - Remediation of soils, surface water, and groundwater
  - Incorporated into a system plan for use as a business tool to support strategic planning for achieving the site closure mission
- **Program drivers**
  - Federal and State (South Carolina) regulations
    - RCRA
    - CERCLA
  - FFA and SRS RCRA Permit cleanup milestones and schedules



*UAV Maintenance at 105-P*



## Strategy: Integrated Lifecycle Approach

- Comprehensive lifecycle approach that integrates facility and waste unit closure, including other site missions
- Utilizes Area Completion Framework
  - *Identify all cleanup actions needed within an SRS industrial area (waste units and facilities)*
  - *Established process for determining and accelerating administrative pathways*
  - *Graded approach, based on process knowledge, location, and waste management history*
- Define activities and estimate potential funding needs to maintain regulatory compliance and safe conditions, including FFA/RCRA requirements and facility decommissioning
- Seek to reduce lifecycle cost and create efficiency



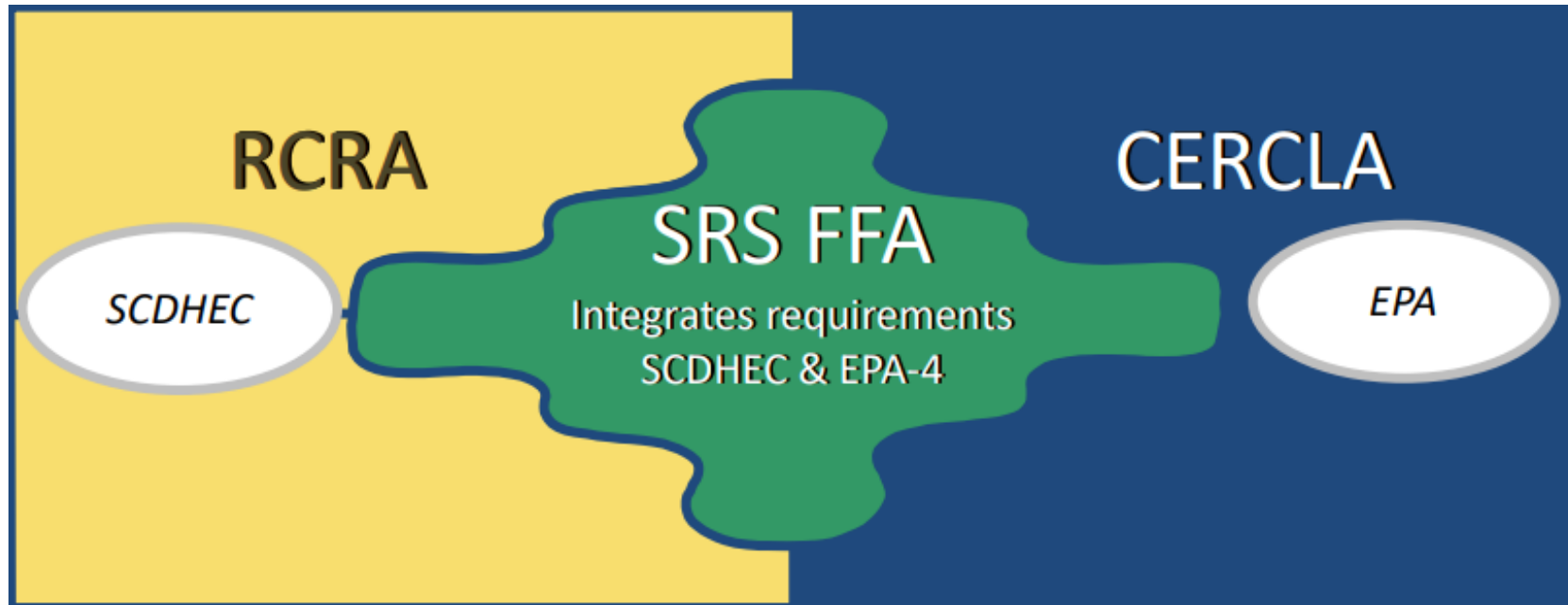
**Scientist mentors and leads interns on a tour of the phytoremediation project**



# Regulatory Requirements: FFA and RCRA/CERCLA

- **Overview**

- FFA: Established August 1993
- Legally binding agreement among DOE, EPA, SCDHEC Integrates requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA) into a single cleanup strategy



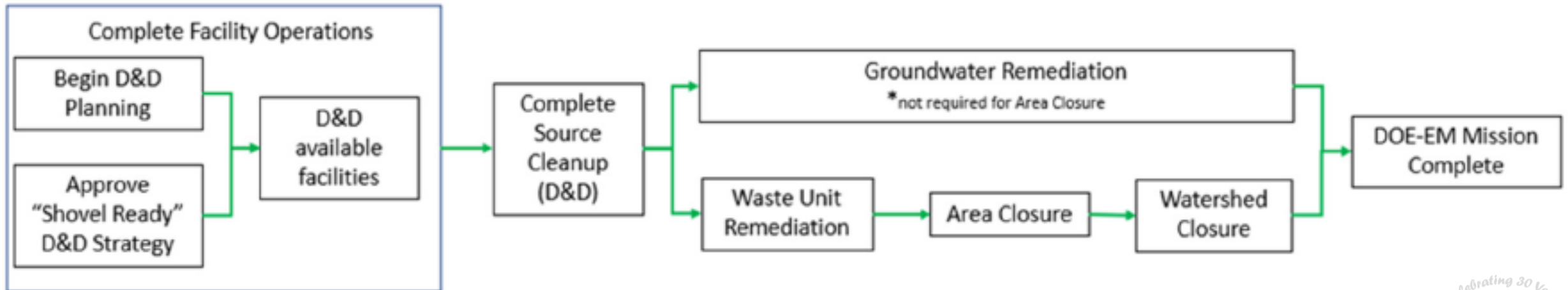


# Regulatory Requirements: A Collaborative, Critical Path Approach

## Principles of Environmental Restoration

- Building an effective Core Team is essential.
- The Core Team has responsibility and authority for decision-making on response to known or potential threats to human health and the environment as SRS.
- Clear, concise, and accurate problem identification and definition are critical.
- Early identification of likely response actions is possible, prudent, and necessary.
- Uncertainties are inherent and will always need to be managed.

 **Communication.  
Collaboration.  
Alignment.**



# Site Closure: Waste Unit Remediation – An Award-Winning Program

## Required by Regulations

- Consists of activities with established FFA regulatory commitments and milestone dates. Includes RCRA.
- 412 of 515 waste units completed
- Over 4,100 consecutive milestones completed since 1993. Current completion projected in 2065.
- Operations and maintenance includes
  - 41 remedial systems
  - 74 closed waste sites
  - 25+ deactivated facilities
- Multiple Innovation and Sustainability Awards
  - Lower Three Runs, Use of Drones, Phytoremediation
- Project Management Institute for Project Excellence



**Top: PAR Pond,  
part of Lower  
Three Runs**



**Left:  
Construction  
activities for  
cleanup in D-  
area**



## Site Closure: Facility D&D

- No regulatory driver for D&D; remaining facilities captured in the FFA
  - Deactivation – the last operational step in which hazards are reduced and a facility is placed in a stable condition, protective of human health and the environment and safe for long-term storage with reduced surveillance and maintenance cost
  - Decommissioning – the post-operational (end-of-life) step where residual hazards are permanently eliminated or reduced to a level protective of human health and the environment
  - End State – the final configuration and condition of a facility at the conclusion of its decommissioning
- Generally, either:*
- Demolition & Removal: facility is removed, completely or to its foundation (slab)
  - In Situ: much of the building's exterior remains after placing the facility in a stable, protective configuration that isolates the residual hazard from the environment



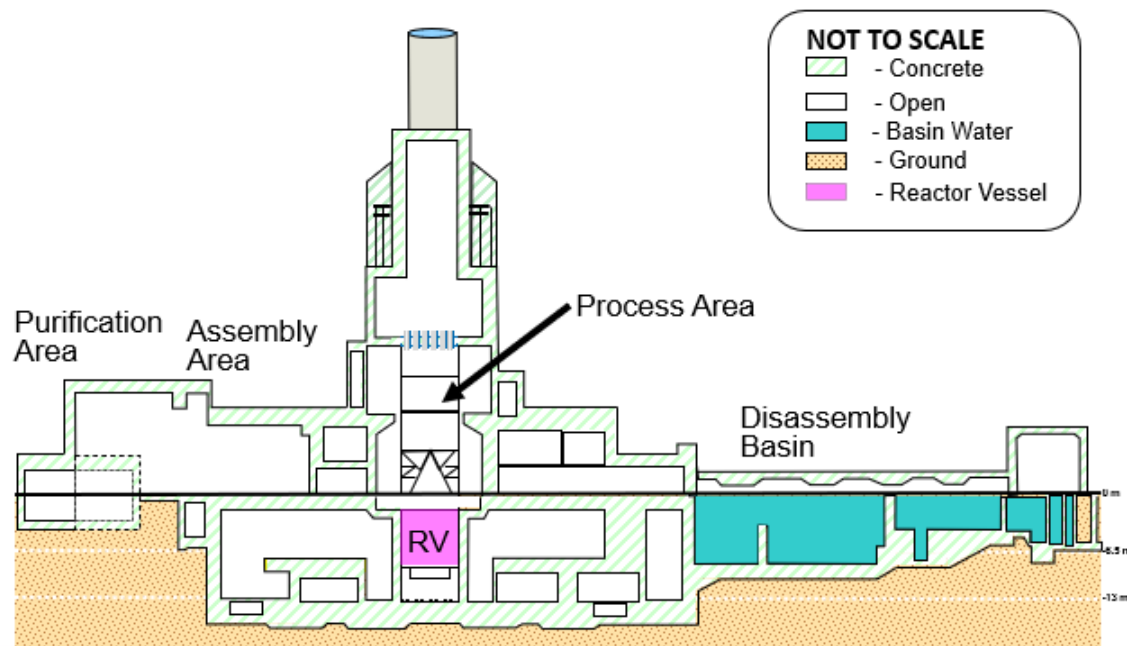
**Conveyor Removal at 484-D**



# Site Closure: Facility D&D – In Situ

105-P

## P REACTOR PRIOR TO DECOMMISSIONING



CAB  
Savannah River Site Citizens Advisory Board

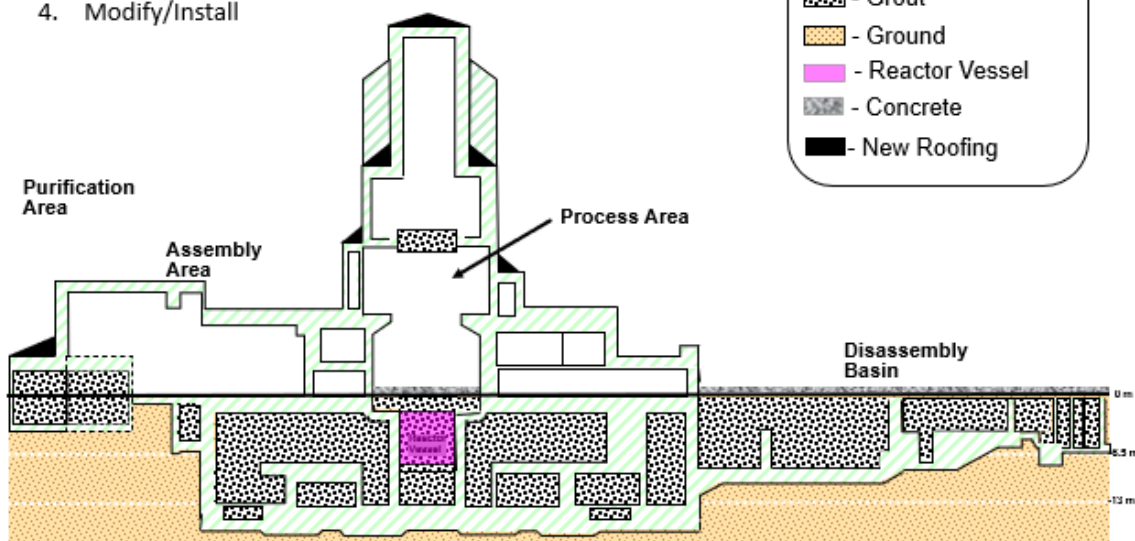


# Site Closure: Facility D&D – In Situ

## 105-P, continued

### P REACTOR AFTER DECOMMISSIONING

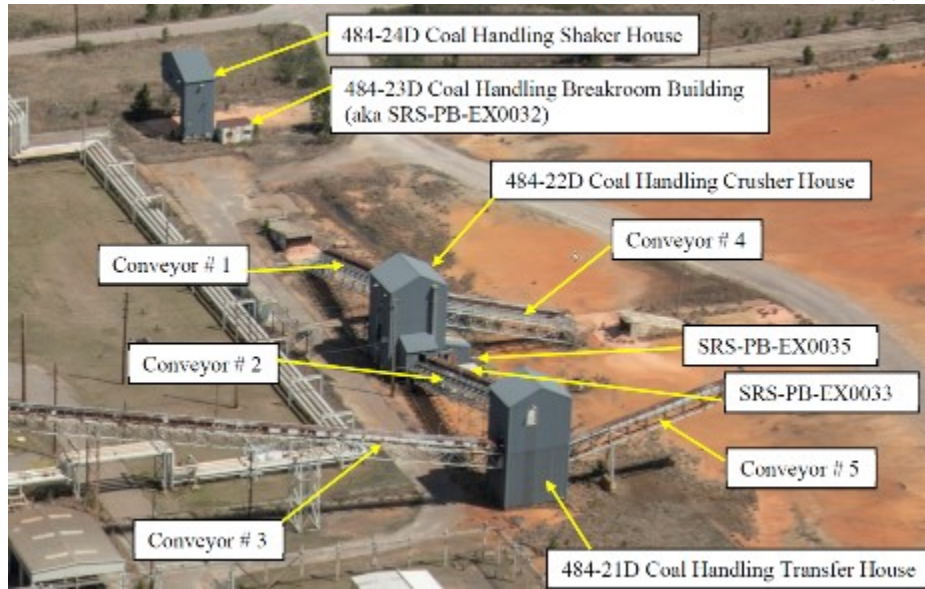
1. Dismantlement & Removal
2. Fill Below-Grade Spaces
3. Demolish
4. Modify/Install





# Site Closure: Facility D&D – D&R

## D-Area Powerhouse Facilities



### Coal Handling System

*Left: Before D&D*

*Right: After D&D*



### 485-D Cooling Towers *Before D&D*



### 485-D Cooling Towers *After D&D*

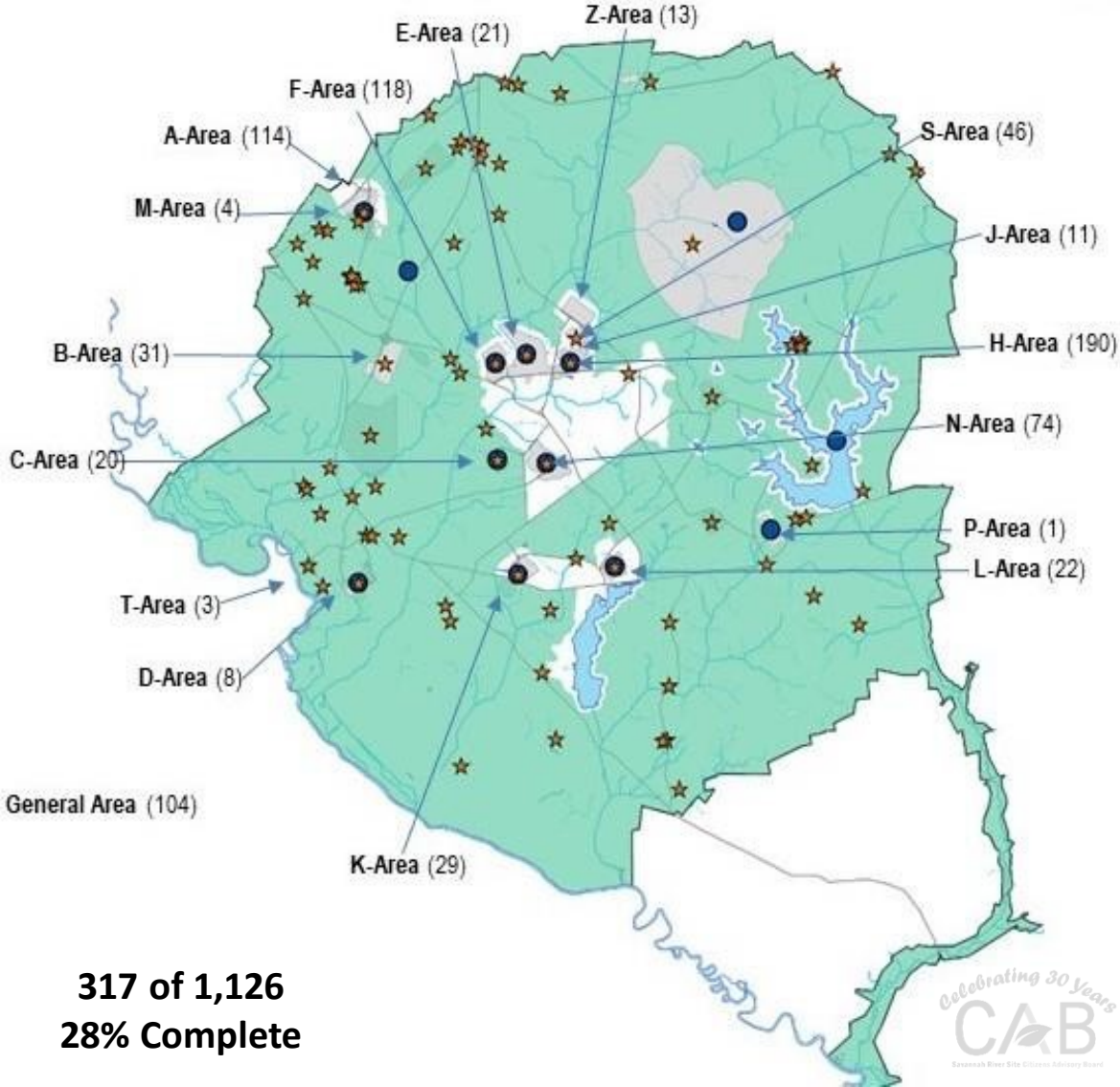


# Site Closure: Facility D&D – Progress

Facility Type	Completed	Remaining
Industrial	281	589
Nuclear	15	187
Radioactive	21	33
Total	317	809



Abatement during demolition



317 of 1,126  
28% Complete



**Federal Facility  
Agreement**

[http://www.srs.gov/  
general/program  
s/soil/ffa/ffa.html](http://www.srs.gov/general/programs/soil/ffa/ffa.html)

**DOE/EPA  
Principles of  
Environmental  
Restoration**

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# Questions?

**Memorandum of  
Agreement for  
Achieving an  
Accelerated  
Cleanup Vision at  
SRS**

[https://www.srs.gov/  
general/programs/  
soil/gen/moaaccel.p  
df](https://www.srs.gov/general/programs/soil/gen/moaaccel.pdf)

**Area Completion  
Projects**

[http://www.srs.gov/  
general/programs/s  
oil/extpage.html](http://www.srs.gov/general/programs/soil/extpage.html)

