



U.S. DEPARTMENT OF
ENERGY

Savannah River Site

Savannah River Site Citizens Advisory Board Facility Disposition and Site Remediation Committee

P-Area Operable Unit (PAOU) & R-Area Operable Unit (RAOU) Update

Presentation By
Rita Stubblefield
Deputy Federal Project Director
Office of the Assistant Manager for Infrastructure and Environmental Stewardship
Department of Energy
Savannah River Operations Office
October 25, 2011





Purpose and Agenda

Purpose: To fulfill the committee's work plan topic and provide a status of the P and R Area Operable Units

- **P and R Area Operable Units Background**
- **Area Completion Objectives**
- **Scope**
- **Accomplishments**
- **Photo Gallery**
- **Lessons Learned**
- **Conclusion**





List of Acronyms

- **D&D** **Deactivation and Decommissioning**
- **GPP/OPS** **General Plant Projects / Operations**
- **PAOU** **P-Area Operable Unit**
- **PCE** **Tetrachloroethylene**
- **RAOU** **R-Area Operable Unit**
- **PSA** **Potential Source Area**
- **SVE** **Soil Vapor Extraction**
- **TCE** **Trichloroethylene**
- **TPC** **Total Project Cost**



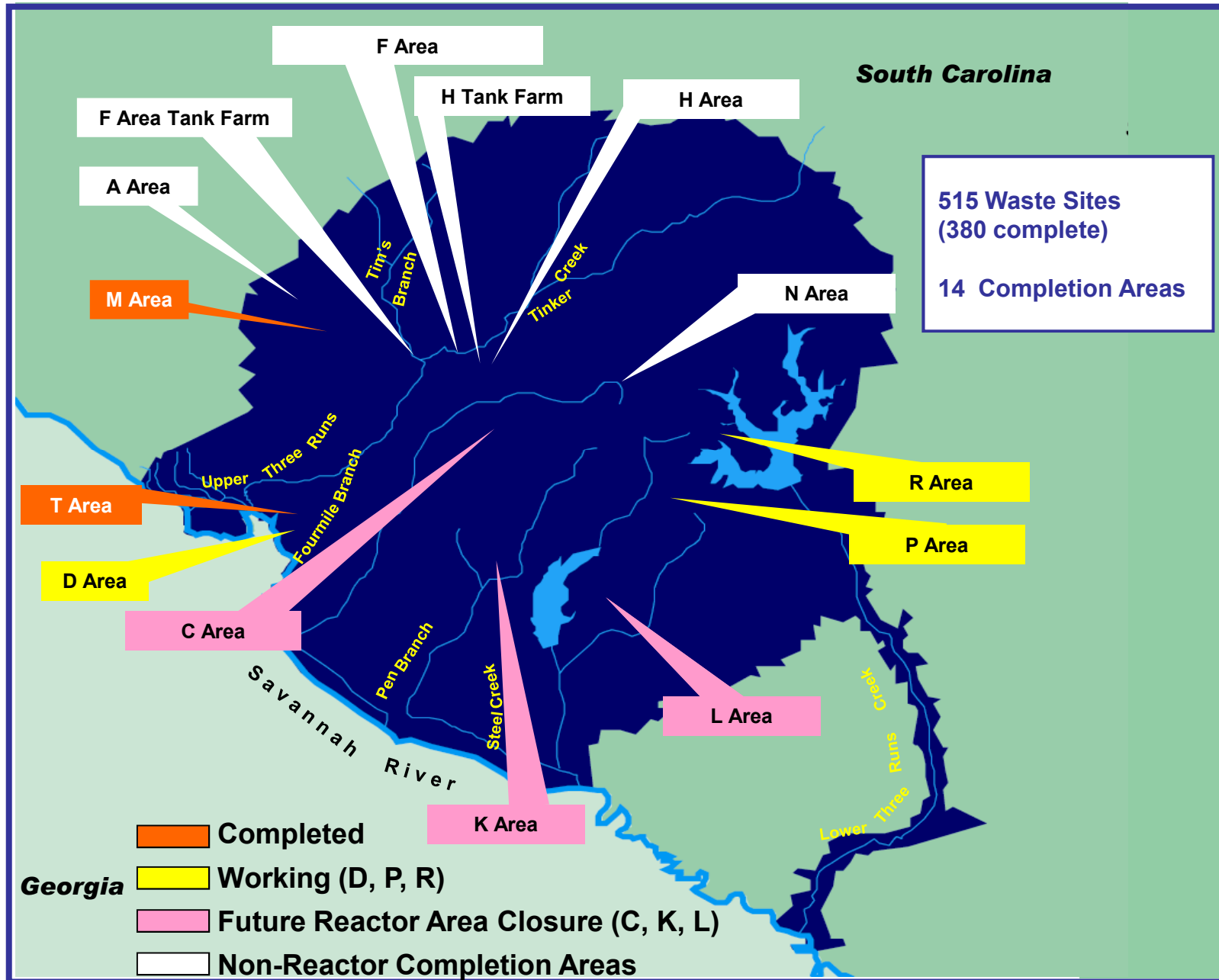


P and R Area Operable Unit Background

- **P Reactor operated from 1954-1988; R Reactor operated from 1953-1964**
- **Each operable unit comprises over 100 acres and includes waste units, and at one time, multiple buildings and ancillary structures that have been decommissioned**
- **Facilities in the areas included the reactor building, maintenance buildings, administrative building, cooling water basin, pump house, and a coal fired power house**
- **Reactors were the operational centerpiece of the area and its purpose was to produce special nuclear materials for national defense**
- **Operable units are the first reactor areas to be addressed under the Area Completion Strategy**

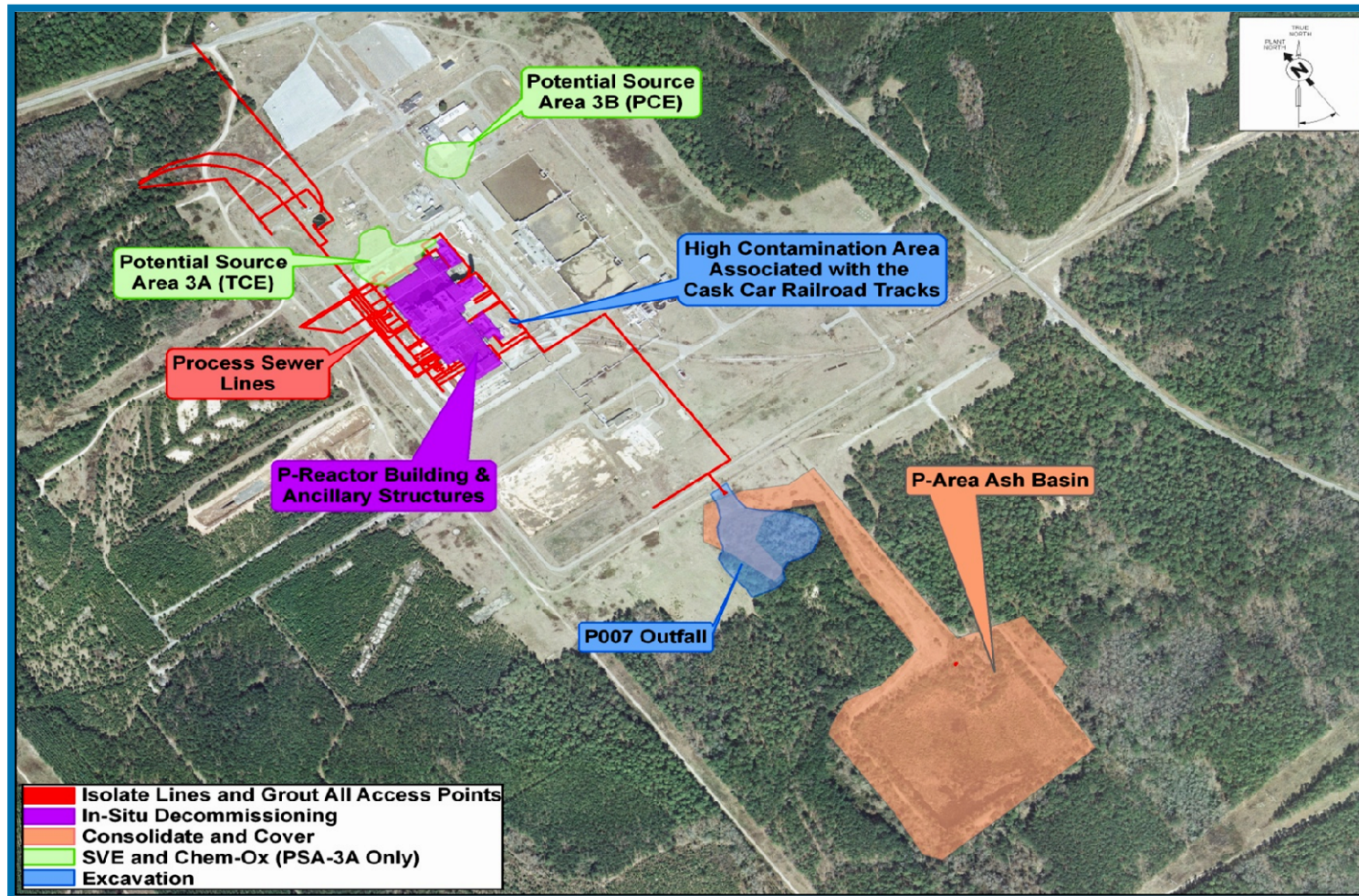


Area Completion Approach



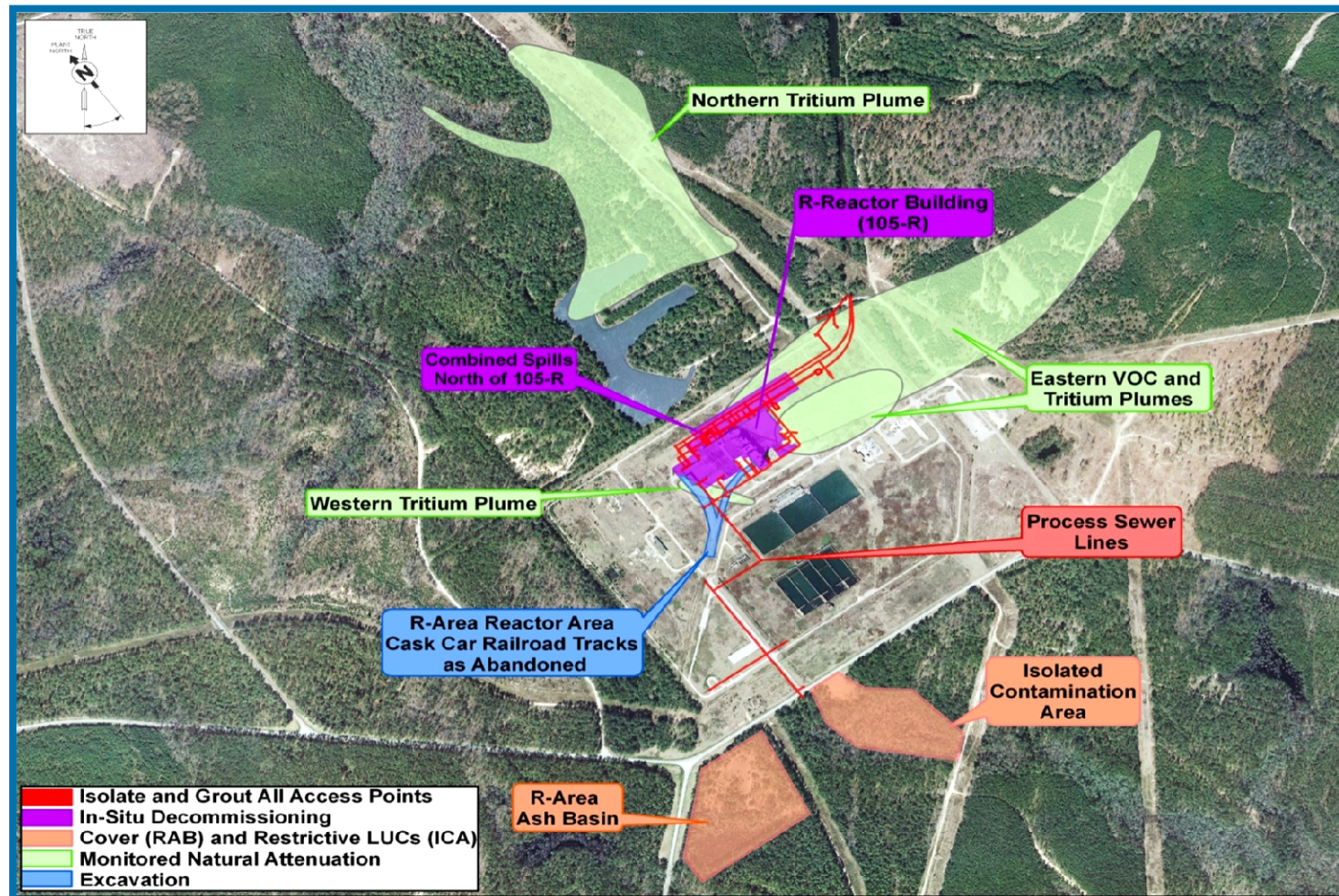


PAOU





RAOU





Operable Unit Completion Objectives

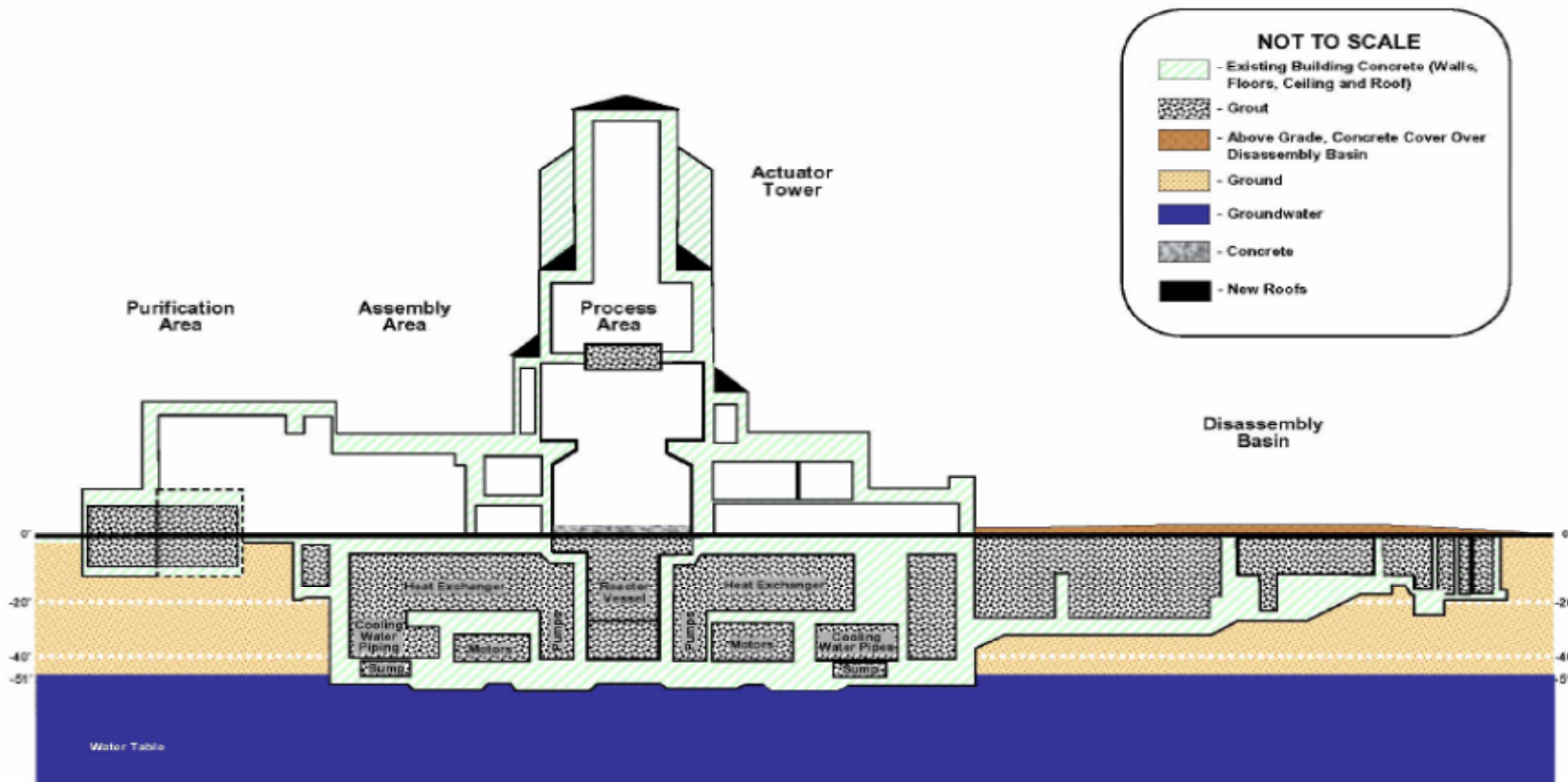
- Remediate waste units requiring action
- In-Situ Decommission Reactor Building
- At completion, Operable Unit will be safe for industrial reuse





Operable Unit Scope (continued)

Reactor In-Situ End-State Cross Section





Operable Unit Scope

- The projects are being safely performed as part of the Recovery Act funding. Scope includes:
 - D&D of each Reactor Building
 - The placement of approximately 120,000 cubic yards of grout within the reactor building and Disassembly Basin
 - The removal of the Disassembly Basin wing and concrete cap installation over that footprint
 - Ventilation Stack and Gantry Crane removal
 - Roof modifications and sealing of building
 - Evaporation of four million gallons of water from the P-Reactor Disassembly Basin (R Reactor previously completed)





Operable Unit Scope (continued)

- **PAOU**

- **Remediate waste units requiring action:**
 - **Cask Car Railroad Tracks (radiological contamination)**
 - **PSA-3A and 3B waste units (solvent contamination)**
 - **P007 Outfall (radiological contamination)**
 - **Process Sewer Lines (radiological contamination)**
 - **Ash Basin (spent coal ash including arsenic)**
- **Characterize groundwater**

- **RAOU**

- **Remediate waste units requiring action:**
 - **Cask Car Railroad Tracks (radiological contamination)**
 - **Process Sewer Lines (radiological contamination)**
 - **Area North of Reactor Building**
 - **Ash Basin (spent coal ash including arsenic)**
 - **Groundwater contamination (tritium & VOC plume)**
- **Construct drainage improvements**





Operable Unit Current Status

- **P Reactor**

- Removed Gantry Crane
- Completed Disassembly Basin water evaporation
- Deactivation complete
- Placed over 116,000 cubic yards of grout in building
- Completed roof modifications
- Completed stack removal
- Completed sealing of building
- Completed Disassembly Basin wing demolition and cap installation
- Project is mechanically complete

- **R Reactor**

- Removed Gantry Crane
- Deactivation complete
- Placed over 124,000 cubic yards of grout in Disassembly Basin
- Completed roof modifications
- Completed stack removal
- Completed sealing of building
- Completed Disassembly Basin wing demolition and cap installation
- Project is mechanically complete





Operable Unit Current Status (continued)

- **PAOU**

- Completed Cask Car Railroad Track remediation (excavated soil contamination)
- Completed well installation at PSA-3A/3B
- Completed Process Sewer Line remediation (grouted manholes)
- Completed P Ash Basin 30-acre vegetation removal and soil cover installation
- Batch plant demobilized
- P Groundwater characterization complete

- **RAOU**

- Completed Cask Car Railroad Track remediation (excavated soil contamination)
- Completed monitor well installation for Groundwater
- Completed Process Sewer Line remediation (grouted manholes)
- Completed drainage improvements on southern portion and initiated at northern portion
- Completed R Ash Basin soil cover installation





U.S. DEPARTMENT OF
ENERGY

Savannah River Site

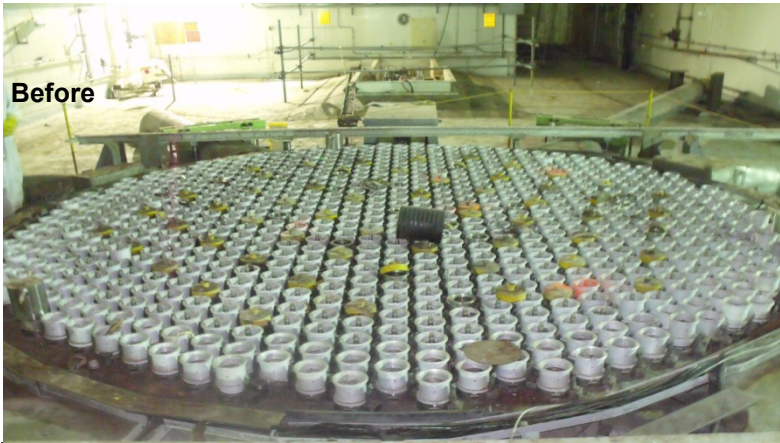
Photo Gallery





105R Reactor Vessel

Before



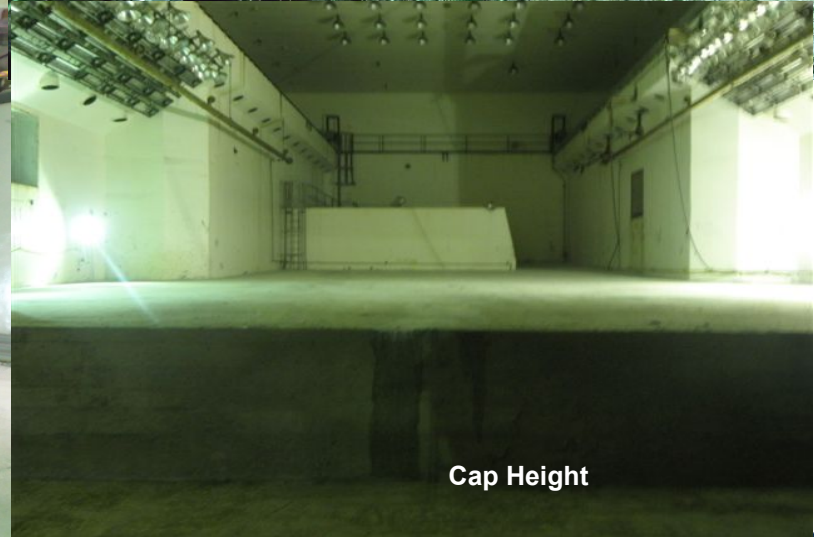
Final



During



Cap Height





U.S. DEPARTMENT OF
ENERGY

Savannah River Site

105R Stack Demolition

Before

After





P Ash Basin Remediation

Before



Final





105P Lower Level Grouting



Stairwell #4 from Zero Elevation





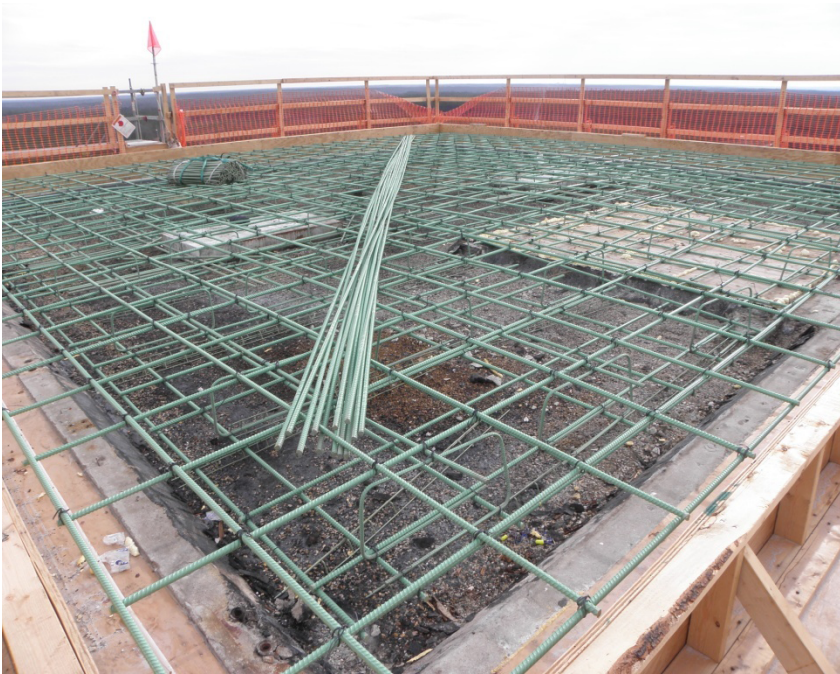
105P Lower Level Grouting (con't)





105R Roof Modifications

Rebar Placement at +149



Final roof cap after
curing at +149





105R Disassembly Basin

During Demolition



Final Cap





U.S. DEPARTMENT OF
ENERGY

Savannah River Site

105R Aerial





U.S. DEPARTMENT OF
ENERGY

Savannah River Site

105R Aerial





Final Sealing of 105P Reactor





105P Reactor Initial State





U.S. DEPARTMENT OF
ENERGY

Savannah River Site

105P Aerial End State





U.S. DEPARTMENT OF
ENERGY

Savannah River Site

105R Reactor Aerial-End State





Conclusion

- **Work has been performed safely**
- **Reactor decommissioning scope and waste unit remediations have been executed**
- **Projects are mechanically complete and completed ahead of schedule in August 2011 and below cost**





Cost Backup (Total Project Cost)

- **P Reactor Decommissioning** **\$77.5M**
- **R Reactor Decommissioning** **\$75.8M**
- **R Ash Basin Remediation** **\$9.4M**
- **P Ash Basin Remediation** **\$17.7M**
- **PAOU & RAOU GPP/OPS** **\$160M**

