



U.S. DEPARTMENT OF
ENERGY



F/H Laboratory Deactivation Project

Trey Gilland

Savannah River Nuclear Solutions
F/H Laboratory Deactivation Project Manager

Brief to SRS Citizens Advisory Board

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Facility Deactivation and Decommission (Definitions)

Facility Deactivation

- Activities performed to transition a facility from a state of Operations to a passive and stable state that can be maintained and monitored for a long period of time at a minimal cost.
- Deactivation Project Plan and End Points are developed to establish a baseline scope of work.
“End point” – specific task to accomplish objectives of deactivation
- Includes activities that reduce or eliminate remaining hazards in the facility.
 - Removal of chemicals, process material and hazardous components
 - Decontamination of radiological equipment, components and rooms
 - Isolation of the facility and its systems

Facility Decommissioning

- Final stage of disposition of a facility
- Entails one of two alternatives
 - 1) Demolition – the facility structure and contents are permanently removed
 - 2) In situ disposal – when demolition is deemed impractical, the residual radiological contamination is permanently immobilized, and the remaining structure is sealed to prevent intrusion

F/H Laboratory - Background

- **F/H Laboratory Purpose:**

Initially provided laboratory services for F-Area and H-Area facilities (e.g., Canyons and Tank Farms) in support of chemical separations

- **Laboratory Services Later Expanded to Support Additional Missions:**

- Special Heavy Water Analysis supporting the International Atomic Energy Agency (IAEA)
- Asbestos Analysis for SRS and DOE Complex Wide Decommission and Demolition (D&D) Activities
- Plutonium Metal Exchange Program with Los Alamos National Laboratory (LANL)
- Performed Testing for IAEA and LANL using Thermo Ionization Mass Spectrometry (TIMS) and Inductively Coupled Plasma with Mass Spectrometry (ICP-MS)

F/H Laboratory Buildings:

- 772-F placed in service in mid-1950s – two-story structure (one above grade and one below grade)
- 772-1F placed in service in 1987 – one story with second floor supply HVAC room
- 772-4F placed in service in 1993 – Main exhaust ventilation building for 772-F
- Other support structures: Chiller Building/Cooling Tower; External Transformers; Standby Diesel Generators; External Storage Buildings



F/H Laboratory – Layup and Deactivation (FY18 through FY26)

- **FY18: Project initiated to consolidate laboratory functions and transition analytical activities and personnel from F/H Laboratory to the Savannah River National Lab (SRNL) and B-Area Lab (BAL).**
 - Transitioned F/H Lab unused labs and containment units to “Layup” and began reducing hazardous materials, chemicals and radiological hazards
- **February 2021: Completed transition of Analytical activities from F/H Laboratory to SRNL and BAL**
 - Analytical Operations no longer performed in F/H Laboratory
- **September 2021: Approved Safe Shutdown and Deactivation Project Plan and End Points Documents**
 - Prepares buildings for long-term Safe Storage with minimal non-radiological hazards and stable radiological hazards
- **October 2021: DOE Authorized the Start of F/H Laboratory Deactivation**
 - Initiated deactivation of buildings 772-F and 772-1F. Deactivation Plan divided the buildings into Deactivation Zones, deactivating the higher hazard / radiologically complex zones first, working to lower hazard / less radiologically complex zones
- **March 2023: Adjusted the deactivation plan to deviate from zone deactivation for FY24**
 - Determined shutting down steam and water services was a large cost savings
 - Continued with some zone deactivation
- **May 2024: Shutdown Steam and Water services to building 772-1F**
 - Isolated (physical air gap) steam and water services to 772-1F

F/H Laboratory – Layup and Deactivation (FY18 through FY26)

- **April 2025: Deactivated 772-F and 772-1F Diesel Generators and Fuel Tanks**
 - Removed batteries, coolant, oil and diesel fuel
 - Air gapped electrical cables to / from diesel generators
 - Flushed and air gapped diesel generator fuel tanks– allows generators to be considered “Permanently Closed” by the state
- **September 2025: Shutdown Steam to buildings 772-F and 285-3F**
 - Isolated (physical air gap) steam and water services to 772-F
 - Isolated (physical air gap) steam to 285-3F
- **October 2025: Relocated 772-F Control Room to Office Trailer 772-3F**
 - Allowed deactivation of Control Room, remaining offices, restrooms, lunchrooms, conference rooms on the main floor of building 772-F
 - Installed transmitters on ten existing instruments to allow equipment monitoring elsewhere on site
- **December 2025: Deactivated 772-F and 772-1F Instrument Air Systems**
 - Drained oil and fluids
 - Air gapped piping
- **January 2026: Deactivated 254-9F Diesel Generator (supported 772-4F Ventilation)**
 - Removed batteries, coolant, oil and diesel fuel
 - Air gapped electrical cables to / from diesel generators
 - Flushed diesel generator fuel tank – still need to air gap fuel tank to be considered “Permanently Closed” by the state

F/H Laboratory – Deactivation (status – March 2026)

- **Completed Deactivation of 71 of 71 Gloveboxes**
 - All radiologically contaminated Gloveboxes have been deactivated
- **Completed Deactivation of 118 of 118 Radiohoods**
 - All chemical and radiologically contaminated Radiohoods have been deactivated
- **Completed Deactivation of 105 of 105 Radiobenches**
 - All chemical and radiologically contaminated Radiobenches have been deactivated
- **Completed Deactivation of 58 of 58 Labs**
 - All clean and radiologically contaminated labs, service chases and associated support rooms have been deactivated

Active Containment Units



Active Lab (Typical)



F/H Laboratory – Deactivation (status – March 2026, continued)

- **Shutdown Supply and Exhaust Ventilation Systems**

- Supply Fans
- Glovebox Exhaust
- High Level Drain Exhaust
- Low Level Drain Exhaust
- Shielded Cell Exhaust
- 772-F Air Monitoring Exhaust
- Vacuum System supporting analytical equipment

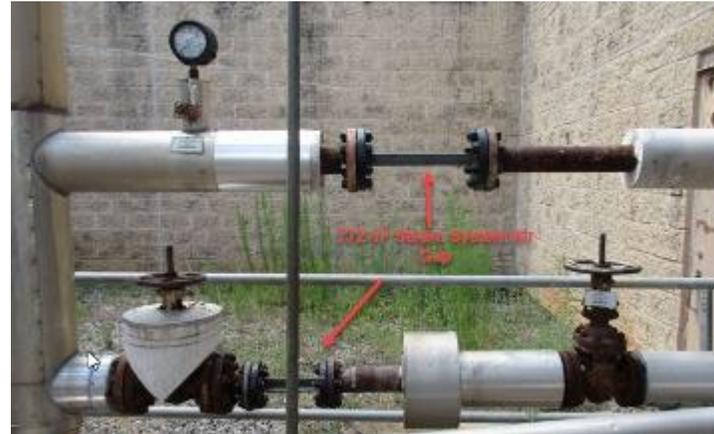
Typical Ventilation System



- **Shutdown and Performed Physical Air Gap of 772-1F and 772-F Steam and Water Systems**

- Steam system used for conditioned air
- Chilled Water system used for conditioned air
- Domestic water used for restrooms, safety showers and eyewash stations
- Process water used for analytical services

Typical Air Gap of Steam / Water System

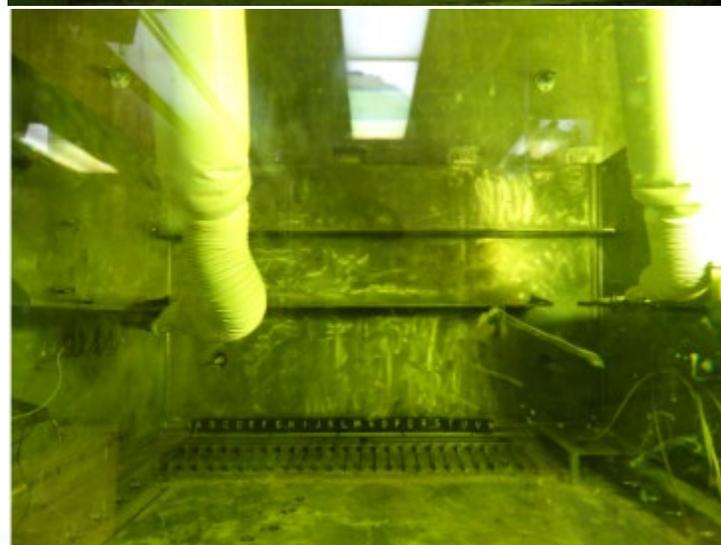


F/H Laboratory – Deactivation (Before and After Deactivation Photos)

Typical Lab Before/After Deactivation



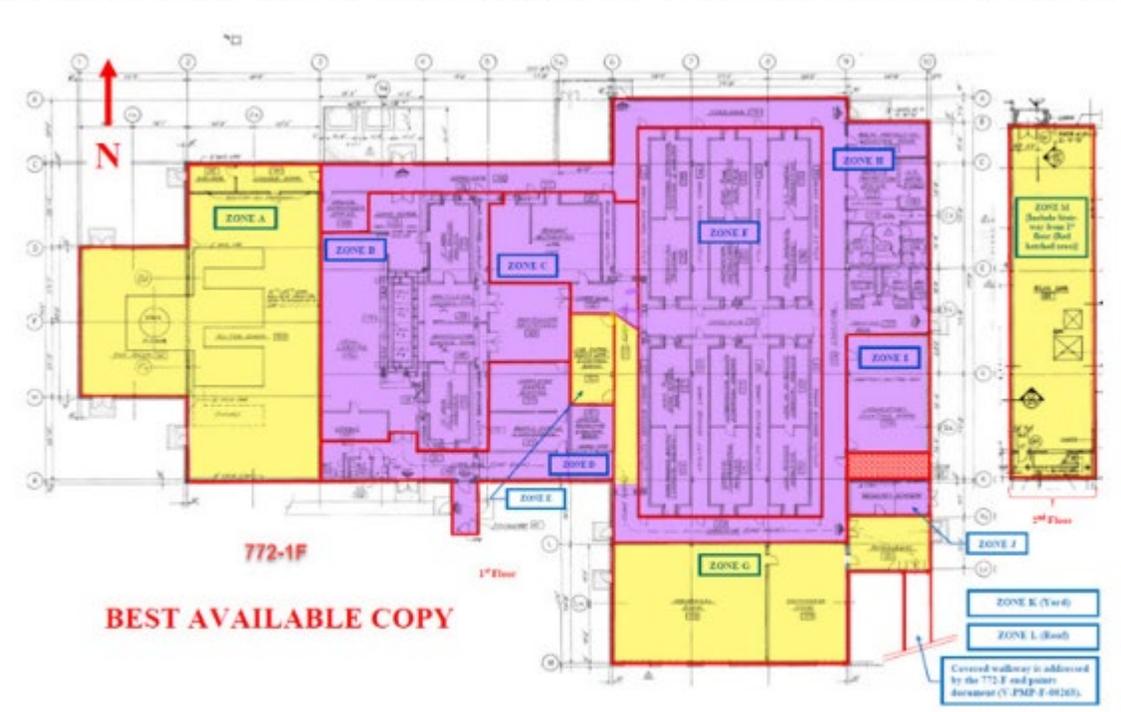
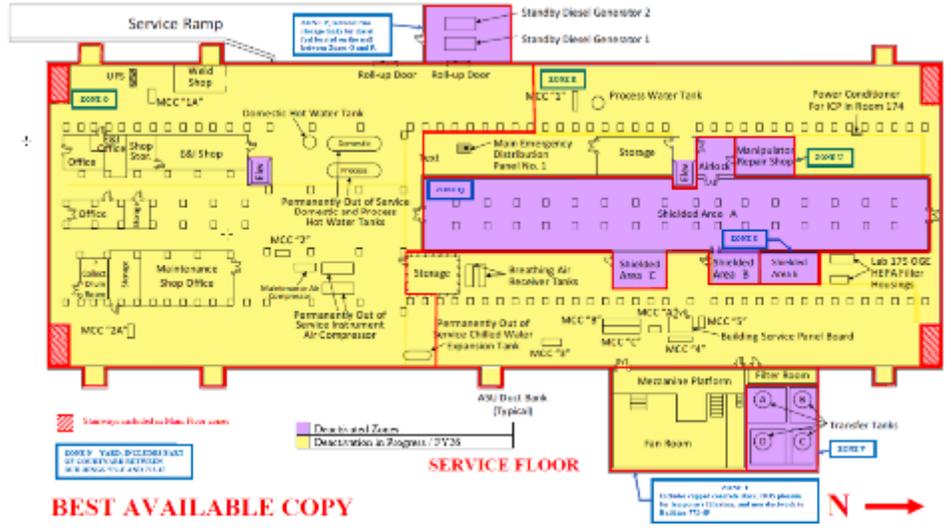
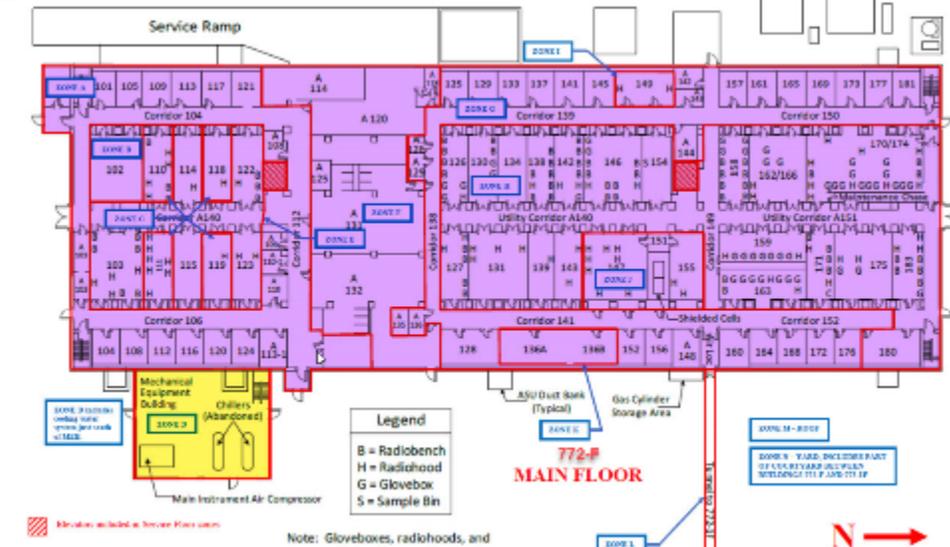
Cells Before/After Deactivation



Glovebox Before/After Deactivation

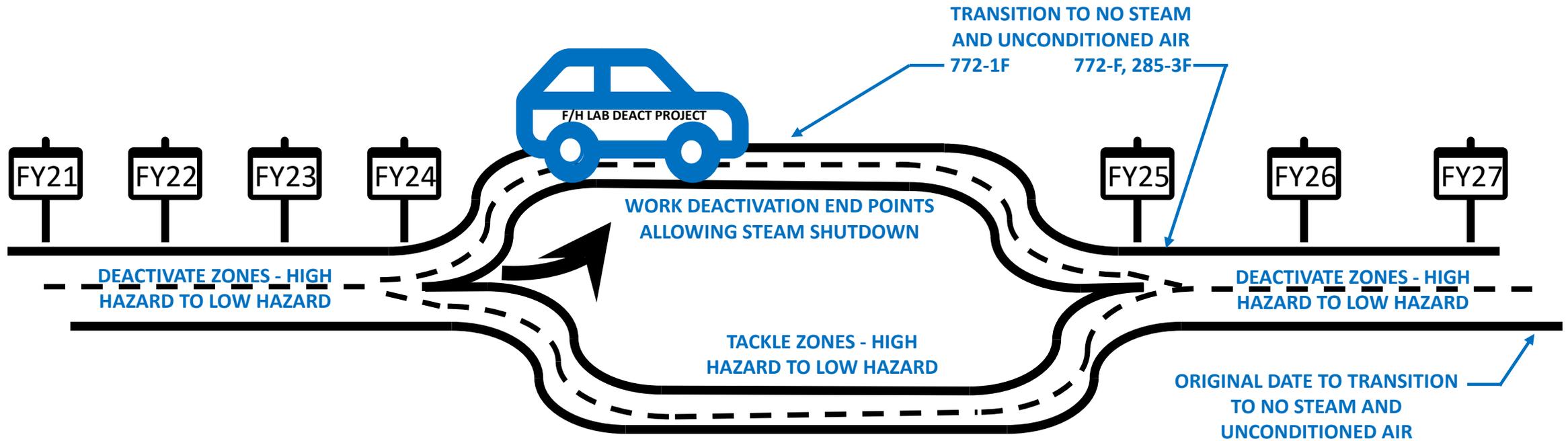


January 2025 F/H Laboratory Deactivation Zone Maps



	Deactivated Zones
	Deactivation in Progress / FY26

FY24 “PIVOT” from Typical Zone Deactivation to Unconditioned Air



- Mid-FY23, Organized Task Team to Review Deactivation End Points & Evaluate S&M Costs
- Identified Steam Usage as Significant S&M Expense (~\$4M Annually)
- Determined Deactivation Could Proceed with No Steam, Unconditioned Air
- Made Decision to “PIVOT” to End Points Resulting in No Steam, and Unconditioned Air
- ~3-4M Annual Utility Savings Helps Fund Remaining Deactivation

F/H Laboratory – Remaining Scope to Complete Deactivation (FY26 - FY27)

Building 772-1F

- Shutdown exhaust ventilation and isolate (air gap) exhaust ductwork to stack
- Seal inlet louvers in remaining 3 Zones
- Complete external electrical and mechanical isolations
- Disposition remaining Radiological Waste containers

Building 285-3F

- Isolate drain and air gap water services
 - Domestic Water
 - Fire Water
 - Chilled Water Supply / Return
- Remove hazardous materials (e.g., chemicals and refrigerant)
 - Approximately 6000 pounds of a total of 6500 pounds of refrigerant has been removed
- Complete external electrical and mechanical isolations
- Remove electrical switchgear batteries

Building 772-F

- Disposition remaining chemicals
- Install external pumps to mitigate rainwater intrusion into 772-F Service Floor (Basement)
- Implement remote monitoring project – allows equipment monitoring outside of F-Area
- Complete deactivation of 772-F Service Floor (Basement)
- Complete deactivation of 772-F Roof (Supply Ventilation)
- Align exhaust ventilation to final end state
 - All supply fans shutdown
 - One exhaust fan operating / one in manual standby
 - Positions dampers in accordance with ventilation study
- Complete external electrical and mechanical isolations